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HANDBOOK
TO
GOVERNMENT SITUATIONS



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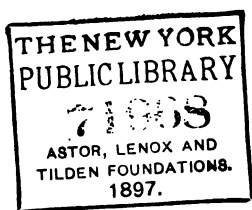
CONTAINING FULL PARTICULARS RESPECTING ALL THE
OPEN COMPETITIONS HELD FOR SITUATIONS IN THE HOME,
INDIAN, AND COLONIAL CIVIL SERVICES;

AND INFORMATION CONCERNING THE SITUATIONS FOR WHICH A
NOMINATION IS REQUIRED.

*WITH EXAMINATION PAPERS AND OFFICIAL REGULATIONS
REPRINTED BY PERMISSION.*

Edited by B. D. K.,
OF THE INLAND REVENUE DEPARTMENT,
ASSISTED BY CORRESPONDENTS IN THE PRINCIPAL PUBLIC OFFICES.

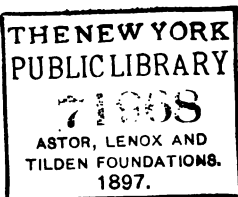
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1887.



PREFACE.

It is hoped that this Handbook, which is intended to be a guide to *all* the situations offered in open competition and the principal appointments made by nomination in the Home, Indian and Colonial Civil Services, will prove the most authentic and useful offered to the public. It has many special features. The first part, dealing with the Open Competitions, is divided into five sections. In Section I. will be found particulars respecting all the ordinary examinations held at regular intervals for situations in the Home Civil Service. Section II. deals with the less important examinations held at irregular intervals. In Section III. is comprised all those important special examinations for situations for which candidates are required to have had previous technical, legal, or other experience. Section IV. deals with the appointments open to girls and women. Section V. is devoted to the Indian and Colonial Services. The Appendix contains a list of the appointments for which a nomination is required, with information in each case respecting the authority with whom the nomination rests.

With the help of correspondents in various Departments of the Civil Service, short articles are in most cases given dealing with the appointments offered in the principal



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TO

GOVERNMENT SITUATIONS.

OPEN COMPETITIONS.

APPOINTMENTS TO THE CIVIL SERVICE.

THE majority of the appointments to what is usually known as the Civil Service are now made by open Competitive Examinations. These Examinations are open, under certain restrictions which will be referred to in each case, to all natural born subjects of her Majesty being of the requisite age, health, and character. The appointments are given to the candidates obtaining the highest places on the examination list, the number of vacancies to be filled being usually announced by the Civil Service Commissioners before the examination. Notices of open Competitive Examinations are given by advertisement in the principal London and provincial newspapers. Those in the London newspapers usually appear on Thursdays. The Commissioners do not record the names of intending candidates until a particular examination is announced, and they do not undertake to send a separate notice of a coming examination to a particular person.

It is not easy to give such a view of the examinations for Government appointments as intending candidates require to enable them to see at a glance what are the openings which the Civil Service affords. Most of the information published is as confusing and unintelligible to the public as the blue-books sold by the Government printers. We have found it the best plan to divide the open Competitive Examinations into five sections, viz. :—

- I. Ordinary open competitions held periodically or at fairly regular intervals.

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- I. Ordinary open competitions held periodically or at fairly regular intervals.

- II. Ordinary open competitions held at irregular intervals.
- III. Special open competitions for appointments for which previous professional training or other experience is required.
- IV. Open competitions for female appointments.
- V. Open competitions for the Indian and Colonial services.

The following Table gives a bird's-eye view of the examinations in each section; the page is indicated in each case where, further on, we have given a full description of the appointments and prospects, with specimens of the examination papers :—

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Index Compiler and Statistical Abstractor, General Registrar's Office, England.—Age 18–21.

Second Assistant Astronomer Royal, Observatory, Edinburgh.—Age 17–33.

Assistant Curator, Museum of Practical Geology.—Age 20–35.

Assistant Keeper, South Kensington Museum (1) Science Branch ; (2) Art Branch.—Age 18–24.

Assistant Naturalist, Dublin Museum.—Age 18–24.

Clerk in Stores, Branch Science and Art Department.—Age 18–35.

Clerk in Edinburgh Museum of Science and Art.—Age 18–35.

Clerk and Registrar, Dublin Metropolitan School of Art.—Age 18–35.

Assistant Librarian and Clerk, Normal School of Science.—Age 18–35.

Clerk in Royal College of Science, Dublin.—Age 18–35.

Draughtsman Office of Board of Public Works, Ireland.—Age 18–30.

Shorthand Clerk, Solicitor's Office, Board of Public Works, Ireland.—Age 18–30.

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Assistant Schoolmaster in Dockyards.—Age 20–35.

Draughtsman, Patent Office.—Age 22–30.

Clerk and Draughtsman in Prisons' Department, England.—Age 21–35.

Clerk of Works, Prisons' Department, Scotland.—Age 25–40.

Assistant Engineer, Public Works Office, Ireland.—Age 26–35.

Draughtsman and Drawing Clerk, Public Works Office, Ireland.—Age 18–30.

Furniture Clerk and Assistant to Do., Public Works Office, Ireland.—Ages 25–35, and 20–24.

Clerk to Curator, Kew Gardens.—Age 20–30.

Clerk, Stationery Office.—Age 20–24.

Assistant Examiner of Binding, Stationery Office.—Age 25–36.

Examiner of Job Printing, Stationery Office.—Age 23–30.

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SECTION I.

ORDINARY COMPETITIONS HELD AT REGULAR INTERVALS.

CLASS I. AND HIGHER DIVISION CLERKSHIPS.

THIS is the most difficult examination connected with the Home Civil Service. The scheme has been in operation since the introduction of open competition in 1870, and 204 vacancies have been filled in this class of clerkships from that date up to the end of 1886. The following are the official regulations :—

The limits of age for these situations are 18 and 24, and candidates must be of the prescribed age on the first day of the Competitive Examination.

At the Competitive Examinations exercises will be set in the following subjects only; the maximum of marks for each subject being fixed as follows, viz. :—

	Marks.
English Composition (including Précis-writing) . . .	500
History of England—including that of the Laws and Con- stitutions	500
English Language and Literature	500
Language, Literature, and History of Greece	750
" " " Rome	750
" " " France	375
" " " Germany	375
" " " Italy	375
Mathematics (pure and mixed)	1,250
Natural Science: that is, (1) Chemistry, including Heat; (2) Electricity and Magnetism; (3) Geology and Mine- ralogy; (4) Zoology; (5) Botany	1,000
* * The total (1,000) marks may be obtained by adequate proficiency in any two or more of the five branches of science included under this head.	
Moral Sciences: that is, Logic, Mental, and Moral Philosophy	500
Jurisprudence	375
Political Economy	375

Candidates will be at liberty to offer themselves for examination in any or all of these subjects. No subjects are obligatory.

No candidate will be allowed any marks in respect of any subject of examination unless he shall be considered to possess a *competent knowledge* of that subject.

No candidate can be admitted to the competition who has not previously

satisfied the Civil Service Commissioners that he possesses the requisite amount of proficiency in the following subjects:—

1. Handwriting.
2. Orthography.
3. Arithmetic (to Vulgar and Decimal Fractions).
4. English Composition.

With this view, preliminary examinations in these subjects will be held at such times and places as the Commissioners may appoint.

A fee of £1 will be required from every candidate attending a Preliminary Examination, and a further fee of £5 from every Candidate who may be admitted to the competition.

The Competitive Examinations are held in London, and the Preliminary Examinations in London, Dublin and Edinburgh. The 199 vacancies which have been filled up to the end of 1885 have been in the following offices:—Admiralty (21); Civil Service Commission (7); Colonial Office (10); Home Office (4); India Office (11); Local Government Board, England (8); Do., Ireland (5); Lunacy Commission (2); Patent Office (7); Post Office, Secretary's Branch (45); Record Office, England (14); Do., Ireland (9); Board of Trade (2); Treasury (7); War Office (15); Assistant Surveyors of Taxes, Inland Revenue (32). The last-mentioned situations are, however, now filled by a different scheme.

Successful candidates are allowed to choose, according to their place on the list, among the vacancies for which they are duly qualified; or they may elect to wait for the chance of a vacancy. When vacancies occur, they are generally offered in rotation to the qualified Candidates then on the list, who are free to decline them without forfeiting their claim to subsequent vacancies.

The following information, which is not open to the public, is supplied to successful candidates by the Civil Service Commissioners, to enable them to exercise their right of choice under this rule. It will give a clear view of the prospects offered in this branch of the Civil Service.

MEMORANDUM AS TO SALARIES, &C., ATTACHED TO CERTAIN SITUATIONS BELONGING TO "CLASS I." OF THE CIVIL SERVICE.

Civil Service Commission.

	£	£	£
5 Senior Clerks. .	400 rising by 20 annually	to 600	
5 Junior „ . .	100 „	15 „	350

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Language, Literature, and History of Greece	750
" " " Rome	750
" " " France	375
" " " Germany	375
" " " Italy	375
Mathematics (pure and mixed)	1,250
Natural Science: that is, (1) Chemistry, including Heat; (2) Electricity and Magnetism; (3) Geology and Mine- ralogy; (4) Zoology; (5) Botany	1,000
. The total (1,000) marks may be obtained by adequate proficiency in any two or more of the five branches of science included under this head.	
Moral Sciences: that is, Logic, Mental, and Moral Philosophy	500
Jurisprudence	375
Political Economy	375

Candidates will be at liberty to offer themselves for examination in any or all of these subjects. No subjects are obligatory.

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MEMORANDUM AS TO SALARIES, &c., ATTACHED TO CERTAIN SITUATIONS BELONGING TO "CLASS I." OF THE CIVIL SERVICE.

Civil Service Commission.

	£	£	£
5 Senior Clerks. . .	400 rising by 20 annually to	600	
5 Junior „ . . .	100 „ 15 „		350

Colonial Office.

	£		£		£
4 Principal Clerks	900	rising by	50	annually to	1,000
7 First Class "	700	"	25	"	800
11 Second " "	250	"	20	"	600

Furnished rooms in the Colonial Office Buildings, with special allowances, may be assigned to two of the Clerks, who attend to pressing business out of office hours.

Three of the Clerks who act as Private Secretaries receive an extra allowance each of £100 per annum.

Home Office.

	£		£		£
3 Principal Clerks	900	rising by	50	annually to	1,000
3 Senior "	700	"	25	"	800
7 Junior "	200	"	20	"	600

India Office.

Correspondence Department :					£
6 Secretaries	1,200
	£		£		
7 Assistants	.	800	rising by	25	annually to 1,000
11 Senior Clerks	.	600	"	25	" 800
13 Junior "	.	200	"	20	" 600

Appointments to Secretaryships and Assistantships *may* be made from outside the Office, although vacant Assistantships are *as a rule* filled by the promotion of Senior Clerks. Three of the Junior Clerks, who act as Private Secretaries, receive an extra allowance each of £150 per annum: two, who act as Resident Clerks, receive each £50 per annum and rooms rent free; and five receive sums varying from £50 to £75 per annum each for special duties in connection with the publication of the India Lists.

Local Government Board, England.

	£	£	£
7 Principal Clerks .	650 rising by	25 annually to	800
12 First Class „ .	400 „	20 „	600
30 Second „ „ .	200 „	15 „	350

Candidates will not be eligible who are under 21 on the 1st day of the Competitive Examination.

Local Government Board, Ireland.

	£	£	£
3 First Class Clerks	350 rising by	20 annually to	550
3 „ „ „	„ „	10 „	500
9 Second „ „	100 „	{ after 8 years } „	300
		15	

General Post Office.

	£	£	£
Chief Clerk			900
20 Principal Clerks :	£	£	£
10 Upper Section .	625 rising by	25 annually to	800
10 Lower „ .	500 „	20 „	600
16 First Class Clerks	400 „	20 „	500
22 Second „ „	260 „	15 „	380
40 Third „ „	150 „	10 „	250

Promotion to the Second Class is by seniority, if qualified, and to the classes above by selection for merit.

Public Record Office, England.

	£	£	£
6 Assistant Keepers	520 rising by	20 annually to	700
10 Senior Clerks .	315 „	15 „	500
	100		
12 Junior „	{ after 2 years }	10 „	300
	150		

Colonial Office.

	£	£	£
4 Principal Clerks	900 rising by 50 annually	to 1,000	
7 First Class "	700 " 25 "		800
11 Second " "	250 " 20 "		600

Furnished rooms in the Colonial Office Buildings, with special allowances, may be assigned to two of the Clerks, who attend to pressing business out of office hours.

Three of the Clerks who act as Private Secretaries receive an extra allowance each of £100 per annum.

Home Office.

	£	£	£
3 Principal Clerks	900 rising by 50 annually	to 1,000	
3 Senior " "	700 " 25 "		800
7 Junior " "	200 " 20 "		600

India Office.

Correspondence Department :		£
6 Secretaries		1,200
	£	£
7 Assistants	800 rising by 25 annually	to 1,000
11 Senior Clerks	600 " 25 "	800
13 Junior " "	200 " 20 "	600

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30 Second " " .	200 " 15 " "	350	

Candidates will not be eligible who are under 21 on the 1st day of the Competitive Examination.

Local Government Board, Ireland.

	£	£	£
3 First Class Clerks	350 rising by 20 annually to	550	
3 " " " " " "	" " " " " "	500	
9 Second " " " "	100 " {after 8 years} " "	300	

General Post Office.

	£	£	£
Chief Clerk			900
20 Principal Clerks :	£	£	£
10 Upper Section.	625 rising by 25 annually to	800	
10 Lower " .	500 " 20 " "	600	
16 First Class Clerks	400 " 20 " "	500	
22 Second " " "	260 " 15 " "	380	
40 Third " " "	150 " 10 " "	250	

Promotion to the Second Class is by seniority, if qualified, and to the classes above by selection for merit.

Public Record Office, England.

	£	£	£
6 Assistant Keepers	520 rising by 20 annually to	700	
10 Senior Clerks .	315 " 15 " "	500	
12 Junior " {after 2 years} " "	100 " 10 " "	300	

Public Record Office, Ireland.

	£	£	£
3 First Class Clerks	315 rising by 15 annually	to 500	
5 Second „	{ 100 after 2 years } „	10 „	300
	150		

Board of Trade.

17 Upper Division Clerks, £200, rising by £15 annually to £400 with the chance of having Duty Pay of varying amount, but not exceeding £200 per annum allotted in addition to salary.

They are also eligible to become candidates for promotion to various Staff appointments in the Department.

These include, under the present arrangement of the Office, the under-mentioned offices :—

	£	£	£
5 Assistant Secretaryships	1,000 rising by 50 annually	to 1,200	
6 Principal Clerkships .	650 „	25 „	800

And some others of varying amounts.

Treasury.

	£	£	£
4 Principal Clerks .	1,000 rising by 50 annually	to 1,200	
7 First Class „ .	700 „	25 „	900
12 Second „ „ .	250 „	20 „	600

There are in addition several Private Secretaryships with extra allowances, which are usually, *but not necessarily*, assigned to Clerks of the second class.

Candidates will not be eligible who are under 22 years of age on the first day of the Competitive Examination.

The superior Clerkships in the following Departments belong to the “New Higher Division of the Civil Service,”

and have salaries commencing at £100, and rising by triennial increments of £37 10s. to £400, to which may be added at any stage, in the case of persons selected for the performance of special duties, duty-pay of proportionate amount not exceeding £200. In those Departments which we have marked (†) no appointment has yet been made under the Class I. Examination. In the majority of them it is now improbable that the vacancies will be filled under this examination.

Admiralty.*

†Chief Secretary's Office, Ireland.

†Customs.

†Inland Revenue.

Lunacy Commission.

Patent Office.

†Science and Art Department.

War Office.

Out of the list resulting from each examination are usually filled (besides those vacancies actually existing when the examination is held) appointments falling vacant within six months from the commencement of the examination. The result of this rule and also more especially of that which allows a candidate to decline an appointment without forfeiting his claim to subsequent vacancies, is, that the less valuable appointments often fall to the lot of candidates considerably lower in the list than the last candidate declared "successful" when the result is announced.

The following Table shows the marks obtained in each subject by the first candidate, the last candidate declared successful, and the lowest candidate on the list who eventually received an appointment in the examinations held in March 1885 and January 1886. In the examination held in December 1886, when but four vacancies were offered, the marks are shown for the first, third and fourth candidates. The place on the list of the last candidate obtaining an appointment as the result of this examination is not known.

* Persons appointed to the Admiralty are liable to service in any Naval establishment at home or abroad.

14 SECTION I.—REGULAR COMPETITIONS.

	English.			Greek.	Latin.	French.	German.	Italian.	Mathematics.	Natural Sciences.	Moral Sciences.	Jurisprudence.	Political Economy.	Total.
	Composition and Precis.	History.	Literature.											
Maximum . .	500	500	500	750	750	375	375	375	1250	1000	500	375	375	
March 1885.														
No. 1	232	228	218	425	469	—	—	—	—	89	241	71	132	2105
No. 10 (last declared successful)	177	276	128	—	31	—	—	—	173	319	78	—	92	1274
No. 18 (last who received an appointment)	152	180	38	224	304	68	67	0	—	—	0	67	22	1122
January 1886.														
No. 1	230	366	283	448	503	145	—	—	—	—	143	102	151	2371
No. 7 (last declared successful)	123	204	107	343	411	17	—	—	—	—	171	160	124	1690
No. 14 (last who received an appointment)	245	282	121	—	227	88	74	—	371	30	—	—	92	1530
December 1886.														
No. 1	163	194	64	239	265	75	—	—	912	165	—	—	95	2172
No. 3	148	267	179	—	—	—	—	—	748	538	—	—	115	2015
No. 4	105	215	73	313	372	—	—	—	653	97	—	—	186	2014

It is necessary to state that a deduction of 125 marks is made from every candidate's total in each subject in these examinations.

About one-third of the candidates who present themselves are University men. The following information, obtained from an authentic source, will give a fairly accurate idea of the proportion of the candidates presenting themselves for examination in 1886 who had studied at a University.

Oxford . .	15 per cent.	Scotch . .	2 per cent.
Cambridge. 15	„ „	Dublin . .	2 „ „
London. . . 6	„ „	No University	60 „ „

CLASS I. CLERKSHIPS.

EXAMINATION PAPERS.

The following Papers have recently been set:—

ENGLISH COMPOSITION.

(Time allowed, 3 hours.)

Write an essay on one of the following subjects:—

1. The causes and consequences of Imperialism in ancient history.
2. The influence exercised by the Doctrine of Evolution on Modern Thought and Inquiry.
3. The contrasts of Modern French, English, and German Prose Fiction.

N.B.—*Candidates are desired to bear in mind that their exercises will be valued according to the quality rather than the quantity of what they write.*

PRÉCIS.

(Time allowed, 3 hours.)

A précis was required of about 18 pages, extracted from the Parliamentary Paper entitled "New Guinea and the Western Pacific Islands" (C. 4273, 1885).

ENGLISH HISTORY.

(Including the History of the Laws and Constitution.)

(Time allowed, 3 hours.)

[Full marks may be obtained by adequate answers to any eight of these questions.]

1. Give some account of Bede's *Church History of the English*. What other sources exist for the History of the English Settlement and early Kingdoms?
2. What were the chief effects of the Danish inroads and settlements in Great Britain during the 9th century?
3. Describe the leading legal and constitutional measures of Henry II.
4. What is meant by a manor? Describe its main features in the 14th century.
5. What were the points at issue between Henry III. and the Barons in 1257 and 1264?
6. Define the duties and give the history of the office of Justice of the Peace.
7. Write an account of the Peasants' Rising in 1381, and state the causes which brought it about.
8. Describe the policy of the House of Lancaster at home and abroad under Henry V. and Henry VI.
9. State the composition and functions of Parliament in the reign of Henry VII.

10. How was the conquest of Ireland effected by Strongbow and his kinsmen? What were the results of this conquest during the Middle Ages?
11. Describe the prerogatives of the Crown in the time of James I.
12. Write an account of the political career and views of Pym.
13. What is meant by the Liberty of the Subject? How far and by what means was it further secured during the 17th century in England?
14. Describe the historical origin and constitution of the Kirk of Scotland.
15. What were the chief grievances of the Irish people during the 18th century? How far were they met by the Repeal of Poyning's Law?
16. Sketch the political career of Burke and indicate his attitude towards the questions of our policy in America and at home.
17. Estimate the importance of the French wars, 1793–1815, upon English Political and Social Life.
18. "Hastings found British India a Colony and left it an Empire." Discuss this statement.
19. Note the chief points raised and settled by the cases of Danby, Archbishop Stratford, Wilkes, Stockdale v. Hansard, Burdett.
20. "It is, perhaps, during the 14th and 17th centuries that Architecture, Costume, and Literature most closely reflect the spirit of the times in England." Examine and illustrate this remark.

ENGLISH LANGUAGE AND LITERATURE.

(Time allowed, 3 hours.)

[Not more than ten of the following questions are to be attempted.]

1. Point out the causes which influenced the formation of dialects in English, and distinguish in each class of dialects those causes which were linguistic from those which were accidental.
2. Write the following passages in modern English, adding grammatical notes where necessary:
 - (1.) A bowe also þat bold barn · begat him þat time,
 & so to schote under þe schawes · schaplyche he lerned
 þat briddes and smale bestes · wip his bow he quelles
 S, plenteousliche in his play · þat pertly to telle
 Whanne he went home eche nigȝt · wip is droue of bestis
 he com himself y-charged · wip conyng & hares
 Wip fisauns & feldfares · and oȝer foules grete
 þhat þe herde & his hende wif · & al his hole meyne
 þat bold barn wip his bowe · by þat time fedde.
 & ȝit hadde fele felaws · in þe forest eche day
 ȝong bold barnes · þat bestes al-so keped.
 - (2.) Sumtyme curtesie & genterie was vertuouse lif and honest
 in word & dede & alle manere of good berynge & suster of holynesse:
 but now it is turned into vanyte & nysete & knackis & iapis & is
 gate of synne, of pride, of rebaudrie, sleute, couetise, glotonye,
 dronkenesse and meynutenynge of synne, of wrapȝe and enuyo &
 bost & wast of goodis & robbynge of pore men.

3. Give instances of words in English that (1) have been formed by false analogy, (2) appear in corrupted forms through mistaken etymology.
4. Illustrate from the history of the pronouns the causes that have been at work in forming the English language.
5. What causes tend to the degradation of a language? Which of them are most influential at the present day, and what are the means available for checking them?
6. Notice the chief steps in the formation of an English prose style up to the year 1520.
7. A recent critic speaks of "the provoking insularity of Shakespeare." Discuss this criticism.
8. Discuss the importance of Waller and Cowley in the history of English literature.
9. Mention the English writers who have consciously used letter-writing as a form of literary expression. Point out their chief characteristics.
10. Mention the chief lyric odes in English literature; notice their structure and consider the difficulties attending such compositions.
11. What English writers have been equally influential in prose and verse? At what epochs and under what circumstances did they chiefly flourish?
12. What has been the influence on English literature at different periods of the existence of a recognised body of critics? What is the influence of criticism on English literature at the present day?
13. Keats and Shelley are often coupled together: what characteristics do you think they had in common as compared with their contemporaries?

TRANSLATION FROM LATIN.

(Time allowed, 3 hours.)

I. *Translate into English:*

Interea barbari catervis decurrentes nunc in vallum manualia saxa, præustas sudas, decisa robora iacere, nunc virgultis et cratibus et corporibus exanimis complere fossas; quidam pontes et scalas ante fabricati inferre propugnaculis eaque prensare, detrahare et adversum resistentis comminus niti; miles contra deturbare telis, pellere umbonibus, muralia pila, congestas lapidum moles provolvere. His partæ victoriæ spes et, si cedant, insignitius flagitium, illis extrema iam salus et adistentes plerisque matres et coniuges earumque lamenta addunt amicos: nox aliis in audaciam, aliis ad formidinem opportuna; incerti ictus, vulnera improvisa; suorum atque hostium ignoratio et montis anfractu repercussæ velut a tergo voces adeo cuncta miscuerant, ut quædam munimenta Romani quasi perrupta omiserint. Neque tamen pervasere hostes nisi admodum pauci: ceteros, delecto promptissimo quoque aut saucio, adpetente iam luce trusere in summa castelli, ubi tandem coacta deditio; et proxima sponte incolarum recepta: reliquis, quo minus vi aut obsidio subigerentur, præmatura montis Hæmi et sæva hiemps subvenit.—*Thucyd.*

II.

Hoc ipso fere tempore Strato ille medicus domi furtum fecit et cædem eiusmodi. Quum esset in ædibus armarium, in quo sciret esse nummorum aliquantum et auri: noctu duos conservos dormientes occidit in piscinamque deiecit: ipse armarii fundum exsecuit, et HS.XII.DC, auri quinque pondo abstulit, uno ex servis puero non grandi conscio. Furto postridie cognito, omnis suspicio in cos servos, qui non comparebant, commovebatur. Quam exsectio illa fundi in armario animadverteretur, quærebant homines, quonam modo fieri potuisset. Quidam ex amicis Sassiæ recordatus est, se nuper in auctione quadam vidisse in rebus minutis aduncam, ex omni parte dentatam et tortuosam, venire serrulam, qua illud potuisse ita circumsecari videretur. Ne multa: perquiritur a coactoribus: invenitur ea serrula ad Stratonem pervenisse. Hoc initio suspicionis orto, et aperte insimulato Stratone, puer ille conscius pertimuit: rem omnem dominæ indicavit: homines in piscina inventi sunt: Strato in vincula coniectus est: atque etiam in taberna eius nummi, nequaquam omnes, reperiuntur. Constituitur quæstio de furto. Nam quid quisquam suspicari aliud potest? An hoc dicitis? armario expilato, pecunia ablata, non omni recuperata, occisis hominibus, institutam esse quæstionem de morte Oppianici? cui probatis? quid est, quod minus veri simile proferre potuistis?—CICERO.

III.

This Paper consisted of 26 lines from Virgil.

IV.

The Loadstone or Magnet: Lucretius.

The Paper consisted of 33 lines.

TRANSLATION INTO LATIN.

I. *Translate into Latin Prose:*

Wise men will apply their remedies to vices, not to names; to the causes of evil which are permanent, not to the occasional organs by which they act, and the transitory modes in which they appear. Otherwise you will be wise historically, a fool in practice. Seldom have two ages the same fashion in their pretexts, and the same modes of mischief. Wickedness is a little more inventive. While you are discussing fashion, the fashion is gone by. The very same vice assumes a new body. The spirit transmigrates; and, far from losing its principle of life by the change of its appearance, it is renovated in its new organs with the fresh vigour of a juvenile activity. It walks abroad; it continues its ravages, while you are gibbeting the carcass, or demolishing the tomb. You are terrifying yourselves with ghosts and apparitions, while your house is the haunt of robbers. It is thus with all those, who, attending only to the shell and husks of history, think they are waging war with intolerance, pride, and cruelty, whilst, under colour of abhorring the ill principles of antiquated parties, they are authorising and feeding the same odious vices in different factions, and perhaps in worse.—BURKE.

II. *Translate into Latin Hexameters :*

Thus wore out night ; and now the herald lark
 Left his ground-nest, high towering to descry
 The morn's approach, and greet her with his song :
 As lightly from his grassy couch up rose
 Our Saviour, and found all was but a dream ;
 Fasting He went to sleep, and fasting waked.
 Up to a hill anon his steps he reared,
 From whose high top to ken the prospect round,
 If cottage were in view, sheepcote, or herd ;
 But cottage, herd, or sheepcote none he saw,
 Only in a bottom saw a pleasant grove,
 With chant of tuneful birds resounding loud ;
 Thither he bent his way, determined there
 To rest at noon, and entered soon the shade
 High roofed, and walks beneath, and alleys brown,
 That opened in the midst a woody scene ;
 Nature's own work it seemed (nature taught art).

MILTON.

Or, as an alternative, a piece consisting of eighteen lines from Byron, was set to be translated into Latin Elegiacs.

LANGUAGE, LITERATURE, AND HISTORY OF ROME.

(Time allowed, 3 hours.)

[Not more than twelve questions to be answered, of which not more than five should be in any one section of the paper.]

SECTION I.

1. Discuss the theory that Latin is a development out of a Græco-Italic original. What is the relation of Latin to the other dialects of Italy ?
2. What can be ascertained as to Latin pronunciation, and on what evidence ? What do you understand by accent in Latin, and what rules can be given for its position ?
3. Analyse the formation of : *mis, ted, sibi, nostrum, eius, ipse, quibus, utri* ; and give the meaning, with instances, of the suffixes : *bro, cro, tro, mento, onso, undo, ili*, analysing these suffixes where you can.
4. What are the formations of the Present-stem in Latin ? Analyse the forms *vidinus, rediit, demus, agi*.
5. Give the primary and derived meanings of Present, l'perfect, Imperfect, and Future-perfect, in the indicative.
6. Translate, and explain mood and tense in the following :—
 1. At tu dictis Albane maneres.
 2. Roges me, nihil fortasse respondcam.
 3. Faxo foris vidua visas patrem.
 4. Absque te esset non viverem.
 5. Peream male si non optimum erat.

6. Si tu ad supplicium ducere, quid aliud clamitares nisi te civem esse Romanum? et si tibi nobile et illustre nomen apud omnes tuæ civitatis profuisset, ille quisquis erat quem tu in crucem rapiebas, qui tibi esset ignotus, cum civem se Romanum esse diceret, si non effugium, ne moram quidem mortis assequi potuit?

SECTION II.

1. Translate and discuss: Livius post aliquot annis, qui ab saturis ausus est primus argumento fabulam serere, idem scilicet id quod omnes tum erant suorum carminum actor, dicitur cum sæpius revocatus vocem obtulisset venia petita puerum ad canendum ante tibicinem cum statuisset canticum egisse aliquanto magis vigente motu, quia nihil vocis usus impediēbat. Inde ad manum cantari histrionibus coeptum, diverbiaque tantum ipsorum voci relictā. Postquam lege hac fabularum ab risu ac soluto ioco res avocabatur et ludus in artem paulatim verterat, iuventus histrionibus fabellarum actu relicto ipsa inter se more antiquo ridicula intexta versibus iactitare coepit; quæ exodia postea appellata consertaque fabellis potissimum Atellanis sunt.
2. Trace the development of the hexameter from Ennius to Juvenal.
3. "The epithet *doctus* was regarded as especially honourable by the greatest Roman poets, and is certainly characteristic of their best productions." Discuss this statement with reference to *two* of the following: Catullus, Lucretius, Virgil, Horace, Ovid, Statius, Juvenal.
4. What is known as to Roman oratory before Cicero? What do you consider were Cicero's chief services to Latin literature? Did prose style degenerate after him? If you think so, give instances, and try to account for what you state.
5. What is the origin of the term "Silver Latin?" Within what historical limits would you apply it, and what would you say were essential characteristics of "silver" Latinity? Illustrate your answer by quotations.
6. Estimate the work of Livy or Tacitus as historian, and of Quintilian as critic, comparing it with similar work of Greek or of modern writers.

SECTION III.

1. What sources for early Roman history were used by Roman writers? On what sources does modern investigation in this department rely?
2. What were the relations of Roman religion to Roman politics in Republican times?
3. "Hinc Gracchi et Saturnini turbatores plebis, nec minus largitor senatus nomine Drusus." What movements are here referred to, and how far is the phraseology justified?
4. "The privileges of the early aristocracy could be attacked by legal measures: those of the later nobles only by revolution." Discuss this statement in its relation to the rise of Imperialism.
5. Illustrate the development of autocracy from Augustus to the Antonines. How far do you think the personal vices or virtues of emperors affected the general acquiescence in Imperialism?

6. What were the principal Roman stations under the Empire? Can any signs of disintegration be perceived before the end of the first century A.D.?
7. Describe and discuss any one of the principal financial crises at Rome of which we have trustworthy accounts.

TRANSLATION FROM GREEK.

(Time allowed, 3 hours.)

Six passages were set, of which five were to be translated into English. They were from Homer (17 lines); Thucydides (13 lines); Euripides (20 lines); Plato (18 lines); Theocritus (17 lines); Demosthenes (17 lines).

TRANSLATION INTO GREEK.

(Time allowed, 3 hours.)

18 lines from Shakspeare were given for Iambics, or, as an alternative, 19 lines from Milton for Hexameters. 16 lines of Froude were set for prose.

LANGUAGE, LITERATURE, AND HISTORY OF GREECE.

The examination was similar to that in "Language, Literature, and History of Rome."

FRENCH. (1.)

(Time allowed, 3 hours.)

I. *Translate into English :*

Un grand silence enveloppait tous ces quais reposés ; les voiles blanches des bateaux repliées et ficelées, semblables à des ailes d'oiseaux devenues captives, les grosses cheminées rouges et noires des vapeurs mettant leur note grave dans ce fouillis de mâts d'où descendaient des cordages découpant leurs fils sur le ciel paisible. Les navires dormaient dans le bassin tranquille, parfois gardés par un douanier mélancolique. Sur leur coque luisante le flot dansant plaquait des reflets clairs qui sautillaient comme des papillons lumineux. Endimanchés et chaudement vêtus, des matelots passaient, allant avec leur démarche de chaloupes vers quelque traversine, sans jeter même les yeux sur les ballots marqués de croix rouges, les amas de bois des Iles, noirs et hérissés comme des chevaux de frise. Des émigrants attendaient sous le vaste hangar, au plafond entre-croisé de poutres, assis sur leurs malles. Des femmes au mouchoir noué sur la tête, des Suissesses aux cheveux nattés tordus en tresses rondes, des Italiens bronzés, un feutre mou planté sur leur front verdâtre ; des Basques, coiffés de leurs bérets, étaient là glacés par la bise. Un jeune homme, aux allures de viveur enfoncé et décaqué, avec des espadrilles aux pieds et un lorgnon à l'œil, emportait sa maigre literie vers le bateau.—J. CLARETIE.

II.

Derrière la maison était le jardin, au milieu duquel on remarquait, sur un socle en maçonnerie, un cadran solaire, entre quelques plates-bandes figurant des as de trèfle; plus loin, des buis taillés en forme de confessionnaux et d'autres en forme de pions d'échecs; dans le fond, un mur au hémicycle propre aux espaliers; à droite, une haie de charmilles. Un vague parfum de cave, de sépulcre et de vieux fiacre saisis Camors à la gorge quand il pénétra dans le salon principal où son couvert était dressé. Il y avait deux chandelles sur la table; il en prit une et s'en servit pour examiner de près quelques-uns de ses ancêtres dont la peinture fanée et craquelée laissait voir la toile en plus d'une place. Après avoir soupé M. de Camors alla se promener dans un chemin vicinal qu'il suivit à l'aventure, et ne trouva devant lui que quelques chaumières éparses, dont les toitures basses et moussues semblaient sortir de cette terre féconde. Il venait de gravir une côte assez roide, du haut de laquelle il entrevoyait d'un œil découragé un nouvel horizon de pommiers, de meules de foin et de confuse verdure, quand un bruit étrange soudain emplît ses oreilles. C'était un agréable concert de voix et d'instruments, qui, dans cette solitude perdue, tenait du rêve et du miracle. S'orientant sur les sons mélodieux qu'il entendait, il descendit la colline.—O. FEUILLET.

III.

(A third piece, consisting of 21 lines from François Coppée, was also set.)

IV. *Translate into French:*

The accession of Queen Elizabeth found commerce leaving its own channels and stretching in a thousand new directions. While the fishing trade was ruined by the change of creed, a taste came in for luxuries undreamt of in the simpler days which were passing away. Statesmen, accustomed to rule the habits of private life with sumptuary laws, and to measure the imports of the realm by their own conceptions of the necessities of the people, took alarm at the inroads upon established ways and usages, and could see only "a most lamentable spoil to the realm, in the over-quantity of unnecessary wares brought into the port of London." From India came perfumes, spices, rice, cotton, indigo, and precious stones; from Persia and Turkey carpets, velvets, damasks, cloth of gold, and silk robes wrought in divers colours. Russia gave its ermines and sables, its wolf and bear skins, its tallow, flax, and hemp, its steel and iron, its ropes, cables, pitch, tar, masts for ships, and even deal boards. The New World sent over sugar, rare woods, gold, silver, and pearls; and these, with the pomegranates, lemons, and oranges, the silks and satins, the scented soaps and oils, and the fanciful variety of ornaments which were imported from the South of Europe, shocked the austere sense of the race of Englishmen who had been bred up in an age when heaven was of more importance than earthly pleasure. Fathers were filled with panic for the morals of their children, and statesmen trembled before the imminent ruin of the realm.—J. A. FROUDE.

FRENCH. (2.)

(Time allowed, 3 hours.)

HISTOIRE ET LITTÉRATURE.

1. Décrivez l'origine, le progrès et la décadence de la monarchie en France.
2. Racontez la vie de Louis XI., Louis XII. et François II., et les noms de leurs épouses, filles de rois d'Angleterre ou d'Ecosse.
3. Quelles sont les œuvres principales de Lesage, Chateaubriand, Bossuet et Fénelon ? Donnez un résumé d'un de leurs ouvrages.
4. Donnez les noms des hommes d'état de ce siècle qui ont été des littérateurs. Citez quelques-uns de leurs ouvrages ainsi que les événements principaux de leur carrière politique.
5. Quelle différence y-a-t-il entre le "parlement" anglais et les parlements français d'avant la révolution ? Nommez quelques-uns des membres de ces dernières assemblées.

GRAMMAIRE.

1. Donnez les règles de syntaxe des pronoms relatifs avec des exemples.
2. Quelle est la différence entre *comme* et *comment*, *aussi* et *si*, *autant* et *tant*, *quand* et *quant à*, *à travers* et *au travers de* ?
3. Comment peut-on former les adverbes en français ? Donnez aussi les exceptions.
4. Que savez-vous de l'emploi des adjectifs indéfinis *certain*, *plusieurs*, *quelconque*, *quelque* et *tout* ?
5. Quand est-ce que l'adverbe *ne* est employé sans autre négation ?

SUJETS DE COMPOSITION FRANÇAISE.

Avantages et désavantages de vivre en ville ou à la campagne.

Ou,

L'argent est un bon serviteur mais un mauvais maître.

PURE MATHEMATICS. (1.)

(Time allowed, 3 hours.)

[Full marks may be obtained for about three-quarters of this Paper.]

1. Describe an isosceles triangle having each of the angles at the base double the angle at the vortex.

If ABD be the triangle described in the figure used in the demonstration, of which A the vortex is the centre of the circle, produce DC, bisecting ADB and cutting AB in C to meet the circle in E.

Prove

(1) $EC = AB$

(2) $EB^2 = AB^2 + BD^2$

2. The rectangle contained by the diagonals of a quadrilateral figure inscribed in a circle is equal to the sum of the rectangles contained by the opposite sides.

ABCD is such a quadrilateral: its opposite sides produced, AB and DC meet in E, and DA and CB in F; from E and F are drawn tangents, EM and FN to the circle, and the line AP is drawn to meet FE in P, making the angle FAP equal to FED.

Prove

$$(1) EF \cdot FP = FN^2.$$

$$(2) EF^2 = FN^2 + EM^2.$$

3. If a straight line be at right angles to a plane, every plane which passes through the straight line shall be at right angles to that plane.

Define the projection of a straight line on a plane; and show that the angle which a given straight line makes with its projection on a plane is less than the angle it makes with any other straight line drawn in the plane, and passing through the intersection of the given line with its projection.

4. Define the least common multiple of any two algebraical expressions; and prove that it is equal to their product divided by their greatest common measure.

Express the three algebraical factors whose product is the least common multiple of

$$\{a^3 + b^3 + c^3 - 3abc + (ab + ac + bc)(a + b + c)\}$$

and

$$\{ab(u + b) + ac(a + c) + bc(b + c) + 3abc\}.$$

5. Solve the equations

$$(1) (a^2 - b^2)x^2 - 2(a^2 + b^2)x = b^2 - a^2.$$

$$(2) x^2 + y^2 + \sqrt{xy}(x + y) = 175$$

$$\sqrt{x}(x + 1) + \sqrt{y}(y + 1) = 40.$$

6. Define Arithmetical progression, and show that the sum of any two terms respectively equi-distant from the beginning and end of a finite arithmetical series is the same.

If P, Q, R, be the sum of (p), (q), (r) consecutive terms respectively of an arithmetical series, beginning with the same first term,

$$\text{prove } \frac{P}{p}(q - r) + \frac{Q}{q}(r - p) + \frac{R}{r}(p - q) = 0.$$

Find the sum of n terms of the series

$$x^2 + (x + 1)^2 + (x + 2)^2 + (x + 3)^2 + \dots, \text{ \&c.}$$

7. In the expansion of a binomial when the series terminates, prove that the coefficient of the r^{th} term from the beginning of the series is equal to the coefficient of the r^{th} term from the end, and if the index be an even number, show that the coefficient of the middle term is the greatest in the series.

Prove

$$1 + \frac{1}{2} + \frac{1 \cdot 3}{1 \cdot 2} \cdot \frac{1}{2^2} + \dots + \frac{1 \cdot 3 \cdot 5 \dots 2r - 1}{1 \cdot 2 \cdot 3 \dots r} \cdot \frac{1}{2^r} = \frac{3 \cdot 5 \dots 2r + 1}{1 \cdot 2 \cdot 3 \dots r} \cdot \frac{1}{2^r}.$$

8. Expand $\log_e(1+x)$ in a series of ascending powers of (x) .

Prove that the Napierian logarithm of $(1+nx)^{\frac{1+nx}{2n}} (1-nx)^{\frac{1-nx}{2n}}$
is $\frac{nx^2}{1.2} + \frac{n^3 \cdot x^4}{3.4} + \frac{n^5 x^6}{5.6} +$, &c.

9. Show how to express a given fraction $\frac{m}{n}$ in the form of a continued fraction.

If $\frac{p}{q}, \frac{p_1}{q_1}$ be consecutive converging fractions to $\frac{m}{n}$, prove
 $pq_1 - p_1q = \pm 1$.

Find the 3 first converging fractions 3·1416.

10. In a bag there are 4 white, 5 red, and 6 black balls, find the chance that in 9 trials (the balls being replaced after each drawing) there shall have been drawn at least once 3 balls of each colour, 9 balls having been drawn at each trial.
11. Obtain an equation connecting the circular measure of a given angle with its measure in degrees, and find the number of degrees in an angle whose circular measure is 2. Show that the limit of $\frac{\sin \theta}{\theta} = 1$ when θ is indefinitely diminished, and hence find $\sin 1^\circ$.
12. Find an expression for $\sin A$, when (A) is the angle of a triangle, in terms of the sides, a, b, c .

In any triangle prove

$$b^2 - c^2 \cot A + (c^2 - a^2) \cot B + (a^2 - b^2) \cot C = 0.$$

[Two other Papers of a more advanced character were set in pure Mathematics, and three Papers in Mixed Mathematics, for each of which three hours were allowed.]

CHEMISTRY (INCLUDING HEAT).*

(Time allowed, 3 hours.)

1. Define temperature. Show on what the temperature of a gas depends according to the kinetic theory. If two masses of nitrogen at the same pressure, but at different temperatures, be separated by a porous diaphragm, determine whether there will be a more rapid diffusion from the hotter to the colder mass, or *vice versa*.
2. Compare the laws of evaporation with those of chemical dissociation by heat; and show that causes which facilitate evaporation also frequently facilitate chemical decomposition.
3. Describe the preparation and properties of marsh gas, and its chlorinated derivatives. Give some explanation of the occurrence

* Another Paper was set, for which a similar time was allowed.

- of marsh gas in nature; and show how it may be obtained from its elements.
4. Explain the causes of the violence and suddenness of the explosion when a mixture of two volumes of hydrogen with one of oxygen is fired. Point out any causes which occur to you as likely to make the explosion of two volumes of carbonic oxide mixed with one of oxygen either more or less violent than that of hydrogen and oxygen.
 5. The formation of a molecule of hydrochloric acid together with its solution in water produces 39·3 units of heat, that of a molecule of water 69·0 units, that of a molecule of nickelous hydroxide 30·7 units, and that of a molecule of nickelic hydroxide 61·1 units of heat: hence show that we might expect nickelous hydroxide to be converted into nickelic by chlorine water, but not by exposure to the air.
 6. 1·412 grams of a mixture of potassium bromide and iodide, titrated with silver nitrate, required 1·785 grams of silver nitrate for the complete precipitation of the haloids: calculate the proportion in which the bromide and iodide were mixed. K:Br:I=39:80:126·5.)
 7. Give some account of the effects of different gases and vapours in the absorption of radiant heat; and explain how the effects of particular gases have been measured. Hence show how the atmosphere affects the climate of different localities; and why it is very difficult to form any estimate of the temperature of the air in the upper region of the atmosphere.
 8. Give an account of the characters, varieties, and relations of tartaric acid.

PRACTICAL CHEMISTRY.

1. Make a complete qualitative analysis of the substance A.* Send up a statement of all that you have done to it, and of the effects which you observed to follow from each operation.
In giving your conclusions, point out the particular observed effects which justify those conclusions.
2. Determine the proportions of ferrous and ferric iron in the solution B* by means of the solution of permanganate supplied.

ELECTRICITY AND MAGNETISM.

(Time allowed, 3 hours.)

1. State the law of Ohm respecting the flow of steady currents. What further relations have to be introduced in order to obtain an expression for the flow during the variable stage?
2. Explain the way in which the current and the heating effect which it produces are related together (α) in a single conductor, such as a piece

* These substances were:—A. A mixture of sodium thiosulphate with ferrous ammonium sulphate and manganese sulphate. B. A mixture of ferrous ammonium sulphate and iron alum.

- of thin wire; (b) in the complete circuit, including resistances that are both internal and external to the battery.
3. Suppose we double the current through a circuit (the resistance of which is maintained constant), by employing more batteries, or batteries of higher electromotive force, will there really be four times as much heat evolved per second as before? Will the quantity of zinc consumed in the cells be twice as great or four times as great when the current is thus doubled?
 4. Explain the fundamental principles of a self-exciting dynamo machine, and state wherein a "shunt" dynamo differs from a "series" dynamo.
 5. Describe the Quadrant Electrometer, and state how the charge of the needle is imparted and maintained.
 6. Define "Electric Potential." Deduce from your definition that the energy spent per second in maintaining a current of strength i in a system of electric light mains, which are at a difference of potential e from one another, is equal to ei .
 7. Draw a curve showing the relation between the current which is employed to excite an electro-magnet and the amount of magnetism excited thereby. How may the relation between current and magnetism be most conveniently expressed in a formula?
 8. What do you know about the phenomena of electric discharge in gases?
- (Another paper was set, for which a similar time was allowed.)

GEOLOGY AND MINERALOGY.

(Time allowed, 3 hours.)

1. Prove that the greatest possible number of faces in a simple crystal of the isometric system is 48. Indicate by a diagram the relation of an octant of these faces to a face of the primary octohedron.
2. What is meant by an optic axis of a crystal. Describe the appearance presented by a translucent plate of a uniaxial mineral, cut of proper thickness and perpendicular to the optic axis, when viewed between the crossed nicols of a polarising apparatus. What is the cause of the black cross?
3. Give the chemical composition and crystalline systems of the following minerals:—Enstatite, Hornblende, Andalusite, Labradorite, and Biotite.
4. Define the following rocks:—Dolerite, Diorite, Dacite, Dolomite.
5. Describe the course of the Gulf Stream in the North Atlantic. Mention the principal explanations of it which have been given.
6. What are the distinctive peculiarities of the following mountain chains:—(a) the Jura, (b) the Central Alps, (c) the Ecuadorian Andes.
7. Give a brief description of the Precambrian rocks of Pembrokeshire and of the Island of Anglesey.
8. Give a brief summary of the arguments for and against including the Permian in the Palæozoic period.
9. Draw a typical section of the Middle and Upper Oolites; indicating any beds limited in extent, as the series is followed from the south to the north.

10. Contrast the Molluscan Fauna of the Carboniferous and of the Lower Oolite Limestones.
11. Give a brief sketch of the Flora of the British Eocene Strata. What inferences should you draw from it as to the climate of the period?
(Another paper was set for which a similar time was allowed.)

ZOOLOGY.

(Time allowed, 3 hours.)

N.B.—*Candidates should illustrate their answers by sketches wherever they consider it advisable.*

1. Give an account of the principal features of the structure and development of the cartilaginous skull in Pisces, and state briefly the relations of the principal cranial nerves to the component elements of the skull.
2. Give an account of the embryonic development of the nervous system and of the coelom (or body cavity) in the Common Fowl.
3. Give as full an account as you can of any one or two of the following:—Archæopteryx, Echidna, Hyrax, Manatus, Gymnotus, Cœcilia, Sphenodon (Hatteria), Naja, Mastodon, Megatherium.
4. Refer, as nearly as you can, to their proper places in the classification of the Vertebrata any or all of the following:—Grampus, Dogfish, Stoat, Skunk, Hare, Moose, Guinea-pig, Glutton, Alligator, Jackal, Peacock, Canary, Newt, Porpoise.
5. Compare together the structure of the heart and great vessels in the several main classes of the Craniate Vertebrata.
6. Give an account of the Anthropoid Apes, describing their habits and geographical distribution, and pointing out in what matters of structure they severally approach or recede from that of the Human Type.
7. Write an essay on any *one* of the following subjects:—The succession of animal forms in geological time. The origin and comparative structure of the paired and unpaired limbs of fishes. Heredity. The origin of the sexual process of reproduction. Adaptations of organs throughout the animal kingdom for effecting locomotion in water.

(Another paper was set, for which a similar time was allowed.)

BOTANY.

(Time allowed, 3 hours.)

1. Discuss the present state of our knowledge of the origin and function of the cell-nucleus as illustrated by the examination of vegetable tissues. Give a brief sketch of the previous history of the subject.
2. Describe fully the structure, mode of occurrence, and probable function of sieve-tubes.
3. Give a general account of the phenomenon of Geotropism. How would you prove experimentally that the geotropism of a growing root is not due to mere plasticity.

4. Into what general groups do the organs of plants admit of classification? State the distinctive characters as regards structure and development by which these groups are defined.
5. Some English plants have one, others have two, and even three kinds of flowers. Explain the way in which this occurs, and give examples.
6. Discuss the homology of the embryo-sac in flowering plants with comparable structures in other groups. State the nature and discuss the morphological significance of the changes of which it is the seat.
7. Give an account of the organisms known as *Bacteria*. Point out their structural and physiological peculiarities.
8. Describe the effect upon vegetable tissues of exposure to a temperature below the freezing point of water. Show that if the necessary conditions are observed, frozen tissues may be thawed without loss of vitality.

(Another paper was set, for which a similar time was allowed.)

(One paper in Logic and Mental Philosophy, one in Moral Philosophy, and two in Jurisprudence, were set, for each of which 3 hours were allowed.)

POLITICAL ECONOMY.

(Time allowed, 3 hours.)

1. What are Economic Laws? From what evidence and by what kind of reasoning are they known? Can they be tested by experience? Illustrate your answer.
2. Classify the causes on which the rate of increase of wealth depends, explain their mode of action, and illustrate from experience.
3. "Land may be cultivated by the tenant or the owner, with hired labour or without; the labourers may be paid fixed wages or a share in profits." Compare the advantages of these methods.
4. Why are wages higher (a) in one trade than another, (b) in one country or time than another?
5. "Value depends on Cost of Production." What does this mean, in what cases is it true, and on what facts is the theory based?
6. "In crowded and purely agricultural countries rent of land tends to be its produce minus the necessities of the cultivator." Discuss this view. Is it consistent with Ricardo's theory?
7. What are "Profits"; by what causes are they affected? Why are they held (a) to tend to a minimum, (b) to depend on Cost of Labour?
8. Discuss the economic effects of—
 - (a) Combinations of labourers to raise wages.
 - (b) Laws fixing a maximum of hours of work or a minimum of wages.
 - (c) Providing houses or education for the poor at the ratepayers' expense.

(Another paper was set, for which a similar time was allowed.)

CLERKSHIPS (MEN) IN THE LOWER DIVISION OF THE
CIVIL SERVICE.

From 1870 (the date of the introduction of open competition) to 1876, these appointments were known as Class II. clerkships. Since the Order in Council of 12th February, 1876, establishing what is known as the Lower Division of the Civil Service, they have been described as "Lower Division Clerkships." The "Lower Division" in some departments includes a number of *boy* clerks, but these enter under a different examination, which is described further on.

It is most likely that these clerkships will prove much better appointments than might be expected from a merely outside view of the official regulations under which they are made. It is now becoming clear that owing to the exigencies of the service, and also to the more or less unsatisfactory working of the "grade system" in the public departments, the best of the clerks of the Lower Division will, in a large proportion of the departments, find no barrier between them and the highest posts in the service. There are, indeed, few openings where the qualifications necessary to obtain one of these appointments would secure to a promising youth such an opportunity of pushing his way in the world, with the chance of rising to high position.

It will be best to give the regulations in full before proceeding to explain what may lie behind the official sketch of the prospects before the candidate.

REGULATIONS respecting COMPETITIVE EXAMINATIONS, held under the ORDERS IN COUNCIL of 4th June, 1870, and 12th February, 1876, for MEN CLERKSHIPS in the LOWER DIVISION of the CIVIL SERVICE.

Competitive Examinations of candidates for Second Class Clerkships in the India Office, Second Class Clerkships in the India Audit Office, and Clerkships in the Lower Division

of the Civil Service, will be held from time to time* at such places as may be deemed expedient.

These examinations are open, under such general restrictions as may be laid down, to all natural-born subjects of Her Majesty, being of the prescribed age and of good health and character. The under-mentioned restrictions are at present in force :

- (i.) The following classes of persons are ineligible ; viz.,
Persons actually serving in the Army and Navy.
- (ii.) The following classes of persons will not be eligible unless they produce to the Civil Service Commissioners the written permission† of the authorities of their department to attend the examination, dated before the commencement of the competition : viz. (a) Persons holding situations in the Civil Service, (b) Members of the Royal Irish Constabulary of less than 12 years' service, (c) Apprentices and Engineer Students in Her Majesty's Dockyards.
- (iii.) Persons who have been trained in Normal Schools at the public expense will not be qualified to receive appointments until the consent of the Committee of Council on Education, Great Britain, or the Commissioners of National Education, Ireland, as the case may be, given in conformity with rules sanctioned by the Lords of the Treasury, has been notified to the Civil Service Commissioners.
- (iv.) In reckoning age for competition and for removal from the list under Clause 8 of the Order in Council of the 12th February, 1876, the following allowances will be made, viz. (1) Members of the Military and Naval services (whether commissioned or non-commissioned) may deduct from their actual age any time during which they have served towards pension ; (2) persons who have served for two full consecutive years, (a) in any civil situation to which they were admitted with the Certificate of the Civil Service Commissioners, (b) in the Royal Irish Constabulary, or (c) as Registered Copyists in con-

* Under present arrangements, three examinations at which Clerks are selected for the Lower Division are held during the year.

† It is desirable that this permission should be produced at least one week before the date of the competition.

nection with the Civil Service, may deduct from their actual age any time not exceeding five years which they may have spent in such service.

A fee of 10s. will be required from every candidate attending a Preliminary Examination, and a further fee of 10s. from every candidate admitted to the Competitive Examination.

Candidates must be over 17 and under 20 years of age on the first day of the Competitive Examination.

The subjects of examination will be as follows :—

- | | |
|--------------------------------|--------------------------------------|
| 1. Handwriting. | 6. Geography. |
| 2. Orthography. | 7. Indexing or Docketing. |
| 3. Arithmetic. | 8. Digesting Returns into Summaries. |
| 4. Copying (to test accuracy). | 9. English History. |
| 5. English Composition. | 10. Book-keeping. |

No candidate can be admitted to the competition who has not previously satisfied the Civil Service Commissioners that he possesses the requisite amount of proficiency in Handwriting, Orthography, and Arithmetic (including Vulgar and Decimal Fractions). With this view, Preliminary Examinations in these subjects will be held at such times and places as the Commissioners may appoint. Application for permission to attend one of these Preliminary Examinations must be made in the writing of the candidate at such times and in such manner as may be fixed by the Commissioners.

The number of persons to be selected at each examination will be published as part of the notice of every such examination. A list of the competitors will be made out, in the order of merit, up to this published number, if so many are found by the examination to be qualified.

The successful candidates, if duly qualified, will be permitted to choose in their order as determined by the Competitive Examination whether they will be placed on the list for Second Class Clerkships in the India Office, for Second Class Clerkships in the India Audit Office, or on the list for the Lower Division of the Civil Service. No candidate will be qualified to be placed on the list for the Lower Division who has been placed on a similar list as the result of a previous examination.

No clerk will remain more than one year in any department unless at the end of that time the head of the depart-

ment shall signify in writing to the Civil Service Commissioners that the clerk is accepted by the department. If he is not accepted, the department will report to the said Commissioners the reasons for not accepting him; and such Commissioners will thereon supply another clerk in his room, and will decide whether the name of the rejected clerk shall be struck off the lists, as unfit for the Service generally, or whether he shall be allowed a trial in another department.

The following, applying to these situations, is an extract from the Order in Council of 12th February, 1876, as amended by the Order of 15th July, 1881:—

The salaries of men clerks in the Lower Division will commence at £80, and will rise by triennial increments of £15 to £200. Provided that in any office in which a regular attendance of seven hours a day is required the commencing salary may be £95 and the maximum salary may be £250.

The triennial increments of salary to men clerks shall not be allowed in full without a certificate from the immediate superior of each clerk, countersigned by the head of the department, or by such officer as he may designate for the purpose, to the effect that the clerk's conduct has been in all respects satisfactory. In cases of demerit, a part, or the whole of the increment, may be withheld, or deferred, according to circumstances.

Extra pay, not exceeding £100 per annum, may be attached to certain situations open to Clerks of the Lower Division whose duties involve the superintendence of other clerks, or are otherwise of a more distinctly responsible character than such as the generality of their colleagues have to perform. The number of such situations in each department, and the amount of extra pay, subject to the maximum of £100, to be assigned to each such situation, will be fixed by the head of the department, with the consent of the Commissioners of the Treasury.

Situations carrying extra pay will be conferred strictly according to positive merit, and not according to seniority.

Promotion from the Lower to the Higher Division of the

Service will not be made without a special certificate from the Civil Service Commissioners, to be granted exceptionally, after not less than ten years' service, upon a special recommendation from the head of the department, and with the assent of the Treasury; and every such promotion, including such recommendation, certificate, and assent, shall be published in the "London Gazette," and shall take effect only from and after the date of such publication.

From 1876 up to the end of 1886, close on 3,000 clerks have entered under these regulations. Lower Division Clerks are now employed in nearly all the principal public offices in London, Edinburgh and Dublin.

The following list is sent to successful candidates to help them in making the choice which they are allowed according to their place on the list.

We have given in *italics* the names of those departments to which *no* appointments have up to the present been made to the superior establishment, under the examination for Class I. Clerkships. In these offices, it is in most instances now improbable that the superior clerical establishments will be recruited under the higher examination, and in the future the promotions thereto will probably be made from the Lower Division. It will be seen that the offices which are likely to be recruited exclusively under the Lower Division Examination scheme include some of the largest and most important in the public service, and in many the superior posts are numerous and very highly paid.

LIST OF DEPARTMENTS IN WHICH LOWER DIVISION MEN CLERKS
ARE EMPLOYED.

Departments.	No. of Lower Division Clerks.
Admiralty	224
<i>British Museum (London)</i>	2
<i>Chancery Department (Edinburgh)</i>	2
<i>Charity Commission (London)</i>	22
<i>Chelsea Hospital (London)</i>	1
<i>Chief Secretary's Office (Dublin)</i>	6
<i>" " Veterinary Department (Dublin)</i>	4
Civil Service Commission (London)	25
Colonial Office (London)	13
<i>Constabulary, Ireland, Inspector-General's Office (Dublin)</i>	10
<i>Customs (London)</i>	157
<i>Deeds, Registry of (Dublin)</i>	14

LIST OF DEPARTMENTS—continued.

Departments.	No. of Lower Division Clerks.
<i>Dublin Metropolitan Police Office</i>	2
<i>Dublin Metropolitan Police Courts</i>	8
<i>Education Department (London)</i>	65
<i>Examiner of Criminal Law Accounts (London)</i>	2
<i>Exchequer and Audit Office (London)</i>	67
<i>Fisheries Office (Dublin)</i>	2
<i>Foreign Office (London)</i>	10
<i>Friendly Societies Registry (London)</i>	2
<i>High Court of Justice, Accountant's Office (Dublin)</i>	2
<i>Home Office (London)</i>	17
<i>Inland Revenue—</i>	
<i>Offices in London</i>	165
<i>Offices in Edinburgh</i>	17
<i>Offices in Dublin</i>	13
<i>Out-door Department (Taxes)</i>	54
<i>Irish Land Commission (Dublin)</i>	4
<i>Land Office (London)</i>	4
<i>Local Government Board (London)</i>	61
<i>Local Government Board (Dublin)</i>	21
<i>Lunacy Commission (London)</i>	3
<i>Lunacy Commission (Edinburgh)</i>	1
<i>Mint (London)</i>	7
<i>National Debt Office (London)</i>	13
<i>National Education Office (Dublin)</i>	41
<i>Paymaster-General's Office</i>	17
<i>Pay Office of the Supreme Court (London)</i>	29
<i>Post Office (London)</i>	333
<i>Do. (Edinburgh)</i>	36
<i>Do. (Dublin)</i>	36
<i>Prisons Board (Dublin)</i>	5
<i>Prisons Department (Edinburgh)</i>	6
<i>Privy Council Office (including Agricultural Department)</i>	15
<i>Public Works Loan Office (London)</i>	6
<i>Public Works Office (Dublin)</i>	30
<i>Queen's & Lord Treasurer's Remembrancer's Office (Edinburgh)</i>	2
<i>Reformatories Office (London)</i>	6
<i>Registrar-General's Office (London)</i>	15
<i>Registrar-General's Office (Edinburgh)</i>	3
<i>Registrar-General's Office (Dublin)</i>	14
<i>Science and Art Department (London)</i>	33
<i>Science and Art Department (Dublin)</i>	1
<i>Scotland, Office of Secretary for (London)</i>	2
<i>Scotch Education Department (London)</i>	17
<i>Stationery Office</i>	11
<i>Teacher's Pension Office (Dublin)</i>	4
<i>Trade, Board of (London)</i>	59
<i>Do. Bankruptcy Department (London)</i>	16
<i>Do. Patent Office (London)</i>	34
<i>Do. Seamen's Registry Office (London)</i>	25

LIST OF DEPARTMENTS—*continued.*

Departments.	No. of Lower Division Clerks.
Treasury (London)	10
Valuation Office (Dublin)	20
War Office	245
Woods, Office of (London)	6
Do. (Dublin)	1
Works, Office of	32

Of the total number of Lower Division Clerks who have entered since 1876, it is estimated that about 20 per cent. already receive, in addition to ordinary salary, "duty pay," in sums not exceeding £100 per annum, under the clause quoted in the foregoing extract from the Order in Council of 12th February, 1876. In 1886 the Playfair scheme had been ten years in operation, and under another clause of the Order in Council already referred to, several promotions to the Upper Division have already been made. To what extent it is intended to recruit the Higher Division by the promotion of Lower Division Clerks may be judged from the following extract from a Treasury letter, dated 19th June, 1884, which was written in reply to a memorial from the Clerks of the Lower Division on this subject:—

"Although the number of Lower Division Clerks promoted to the Higher Division must always bear a small proportion to the number not so promoted, it is not necessary that they should be an insignificant proportion of the Upper Division. On the contrary, my Lords look forward to that Division's being largely replenished, in certain departments, from the best members of the Lower Division. It will probably always be necessary to reserve a power of direct appointment* to the Upper Division; but there are many departments in which this power need not—so far as my Lords can foresee—be exercised habitually, or even frequently. Promotion from the Lower to the Higher Division may therefore fairly be considered as a legitimate aspiration for the superior members of the former."

The following Table shows the marks obtained in each subject by the first candidate and the last candidate successful in recent examinations:—

* Under the Class I. examination.

	Arithmetic.	Compound Addition.	Orthography.	Handwriting.	Copying Manuscript.	Indexing.	Digest of Returns.	English Composition.	Geography.	English History.	Book-keeping.	Total.
Maximum. .	300	100	400	400	200	200	200	200	200	200	200	2600
January 1886.												
No. 1 . . .	270	100	370	275	191	139	160	153	138	131	123	2050
„ 81 . . .	207	100	340	265	185	126	183	115	115	97	147	1880
May 1886.												
No. 1 . . .	221	99	358	323	170	119	183	83	153	174	179	2062
„ 40 . . .	173	100	376	325	150	126	165	108	110	58	127	1818
September 1886.												
No. 1 . . .	298	99	367	315	138	129	163	145	135	102	143	2034
„ 54 . . .	233	99	379	268	117	134	170	95	92	83	138	1808
January 1887.												
No. 1 . . .	248	93	351	323	151	128	175	155	170	133	152	2079
„ 39 . . .	213	100	314	278	101	122	173	113	151	117	114	1796

EXAMINATION PAPERS.

The following have been set in recent examinations:—

SET NO. 1.—PRELIMINARY EXAMINATION.

COPYING.

(Time allowed, $\frac{1}{2}$ hour.)

Copy, on the form supplied, as much of the following, including the Table of Figures, as you can in half an hour, taking care to write as well as you can.

EMIGRATION.

THE following Table exhibits the excess of Emigrants over Immigrants among Persons of British and Irish origin only during the eight years ending with the year 1883:—

Country of Emigration and Immigration.	Excess of Emigrants in							
	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
United States	(—)143	603	20,654	71,758	140,052	146,323	153,435	144,870
British North America	2,706	2,033	4,448	14,455	16,214	18,151	34,344	37,164
Australasia	29,617	25,501	32,272	35,992	18,274	16,805	30,418	64,420
All other parts	5,885	3,168	584	4,133	5,995	9,016	6,458	(—)140
Total	38,351	31,305	57,958	126,338	180,535	190,295	224,655	246,594

From this it would appear that, while the excess of emigrants to the United States in the year 1883 showed a falling off of about 9,000, namely, from 153,435 to 144,870, and the increase in the excess of emigrants to British North America was 3,000 only, namely, from 34,344 to 37,164; and while, as regards all other parts, excluding Australasia, the excess of emigrants in 1882, amounting to 6,458, was converted in 1883 into a small excess of immigrants, yet the increase in the excess of emigrants to Australasia was from 30,418 in 1882 to no less a figure than 64,420 in 1883. This last figure is much the largest on record since this account has been made up, namely, since 1876, being nearly four times larger than the amount to which the excess of emigrants to Australasia fell in 1880 and 1881. Assuming that the emigration to Australasia is very largely an assisted emigration, it is evident that for some reason or other the Australasian Governments during the last two years must have been devoting unusually large sums to this purpose. The falling off in the excess of emigrants to all other parts is almost exclusively accounted for by a diminution in the number of passengers proceeding to the Cape of Good Hope.

Dictation. (1.)

Monmouth on landing in England was well received in the West. He had not been twenty-four hours in England before he found himself at the head of fifteen hundred men; but, though popular among the common people, he received no support from the upper classes. Even the strongest Whigs disbelieved the story of his legitimacy, and thought his attempt ill-timed and fraught with danger. The militia in the neighbourhood was collected by the Lord Lieutenant, and Parliament, lastly passing an Act of Attainder against the Duke, authorized the King to raise extraordinary sums of money to be derived from new duties, and brought in a Bill declaring it high treason to utter words which should bring the person or government of the sovereign into contempt. This Act was, however, never completed: the necessary work was hurried through, and the House was adjourned, that all attention might be given to the insurrection. Meanwhile Monmouth had advanced to Taunton, had been there received with enthusiasm, and, vainly thinking to attract the nobility, had assumed the title of King. Nor was his reception at Bridgewater less flattering. But embarrassments already began to gather round him; he was in such

want of arms that, though rustic implements were converted into pikes, he was still obliged to send away many volunteers; the militia were closing in upon him in all directions; Bristol had been seized by the Duke of Beaufort, and the regular army under Churchill was approaching. His first thought was to march up the right bank of the Severn into Cheshire; but this was pronounced impracticable. He then thought to take Bristol; but, losing time in repairing a bridge by the way, he allowed the regular cavalry to come up; his vanguard was beaten on the bridge, and the attack on Bristol given up.

(A second piece was given.)

ARITHMETIC.

(Time allowed, $2\frac{1}{2}$ hours.)

You are requested to put the number to each question, and to send up the working as well as the answers.

N.B.—(1.) *You are particularly recommended to answer the questions in the order in which they are set; not omitting any one unless you are unable to do it.*

(2.) *No extra credit will be given for completing your answers in less than the time allowed.*

1. Add together $2\frac{1}{4}$, $\frac{11}{12}$, $3\frac{5}{12}$, and $\frac{7}{8}$.
2. Subtract $5\frac{1}{4}$ from $10\frac{2}{3}$.
3. Multiply $10\frac{1}{3}$ by $1\frac{1}{4}$.
4. Divide $2\frac{1}{4}$ by $2\frac{3}{4}$.
5. Add together $2\cdot364$, $\cdot0089732$, $43\cdot8097$, and $300\cdot46537$.
6. Subtract $38\cdot09864$ from $328\cdot0975$.
7. Multiply $8\cdot43076$ by $\cdot104082$.
8. Divide $204\cdot079$ by $\cdot0437$.
9. Reduce $\cdot0438$ of 3 bushels 1 gallon to pints and the decimal of a pint.
10. Reduce 263369 inches to miles, furlongs, poles, &c.
11. If 11 cwt. 1 qr. cost. £9 3s. 9d., find the value of 1 cwt. 2 qrs. 12 lbs.
12. Find (by Practice) the value of 7 ozs. 12 dwts. 12 grains at £2 8s. per lb.
13. What is the simple interest on £1680 for $4\frac{1}{2}$ years at $3\frac{1}{2}$ per cent. per annum?
14. Add together $\frac{1}{15}$, $3\frac{1}{16}$, $\frac{11}{12}$, and $\frac{4}{3}$.
15. Subtract $47\frac{1}{8}$ from $56\frac{7}{16}$.
16. Multiply together $6\frac{3}{8}$, $\frac{19}{21}$, $2\frac{34}{111}$, and $\frac{37}{88}$.
17. Divide $5\frac{29}{40}$ by $2\frac{37}{10}$.
18. Add together $\cdot86621$, 492 , $58\cdot8172$, and $435\cdot007641$.
19. Subtract $265\cdot5973$ from $375\cdot407397$.
20. Multiply $38\cdot0437$ by $4\cdot070063$.
21. Divide $5\cdot63209$ by $321\cdot05$ correctly to four places of decimals.
22. Express 3 days 3 hours as the decimal of 2 hours 15 minutes.
23. Reduce 5 acres 3 roods 4 perches 7 yards to square feet.
24. After deducting a tax of 8d. in the £ from a man's income it is £333 10s. What is his gross income?
25. Find (by Practice) the cost of 87642 articles at 16s. 3d. per dozen.
26. Find the amount of £4175 for 3 years at $2\frac{1}{2}$ per cent. per annum compound interest (neglecting fractions of a penny).

27. Add together $27\frac{3}{4}$, $51\frac{1}{2}$, and $1\frac{1}{8}$.
 28. Subtract $242\frac{2}{3}$ from $265\frac{5}{6}$.
 29. Multiply together $\frac{399}{338}$, $\frac{91}{187}$, and $\frac{133}{47}$.
 30. Divide $\frac{153}{308}$ by $3\frac{3}{4}$.
 31. Add together $\cdot 007$ of a week, $\cdot 572$ of a day, and $5\cdot 73$ of 3 hours, and express the answer in minutes and the decimal of a minute.
 32. Subtract $\cdot 406$ of 2 acres 1 rood from $5\cdot 25$ of 1 rood 13 perches, and express the answer in perches and the decimal of a perch.
 33. Multiply $1\cdot 2729$ by $\cdot 0123$, and express the answer as a decimal.
 34. Divide $3\cdot 849$ by $\cdot 2053$, and express the answer as a decimal.
 35. Express $15s. 7\frac{1}{2}d.$ as the decimal of $\frac{1}{2}$ of £168 15s.
 36. In 15897 grains how many lbs. ozs. dwts. &c. ?
 37. If 120 men working 10 hours a day can make an embankment 90 yards long, 20 feet wide, and 8 feet high in 5 days, how many days will it take 500 men working 9 hours a day to make an embankment 1200 yards long, 25 feet wide, and 9 feet high?
 38. Find (by Practice) the dividend on £6285 15s. at 16s. 9d. in the £.
 39. In what time will £480 amount to £547 10s. at $3\frac{1}{2}$ per cent. per annum simple interest?

ADDITION.

(Time allowed, $\frac{1}{2}$ hour.)

N.B.—You had better occupy the whole time allowed.

No additional marks will be given for rapidity.

Do not copy out the Sums, but add them up, placing the answers in the spaces indicated.

£	s.	d.	£	s.	d.	£	s.	d.
54346	3	6	318019	3	8	362145	5	10
566984	5	4	476239	15	7	29200	7	9
65211	6	8	917	10	8	604873	10	9
538097	1	2	817637	6	9	89768	12	11
873	2	1	95016	18	2	267873	13	2
97239	2	5	620547	8	9	69263	15	4
86631	7	7	314197	6	5	859276	3	8
7624	6	2	69840	3	7	381397	7	1
90374	2	1	209172	1	9	891174	2	10
786178	2	4	426409	12	8	23297	12	5
74573	2	4	840732	9	2	476385	16	3
8797	7	7	22896	10	10	38745	14	2
741	18	2	361211	6	7	240671	13	6
642935	8	1	31847	1	2	772	2	6
358756	3	7	386541	17	3	744032	8	6
1867	4	11	61542	18	9	36197	11	7
24761	18	4	34232	1	11	631902	8	6
621140	15	6	189603	2	5	99374	5	7
19109	19	10	465983	17	11	23276	5	9

. The paper contained seven more columns similar to the above.

COMPETITIVE EXAMINATION.

COPYING.

(Time allowed, 20 minutes.)

On the form supplied, copy, in your best handwriting, as much as you can of the following, including the Table of Figures, in the prescribed time.

SAN FRANCISCO—IMPORTS.

The value of the principal articles from Great Britain during the past five years has been—

Articles.	1883.	1882.	1881.	1880.	1879.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Manufactured steel	355,600	1,960,800	726,800	—	—
Tin plates	683,300	935,000	679,400	704,000	443,000
Coals	400,000	402,700	593,300	98,500	71,800
Cement	202,000	161,200	—	—	—
Earthenware	166,000	217,000	178,500	159,300	166,000
Pig iron	281,100	218,000	63,300	133,000	26,100
Manufactured iron	186,000	472,000	301,100	424,800	135,000
Steel ingots	210,000	224,000	83,100	180,000	51,200
Cotton goods	110,200	142,000	116,000	65,000	108,300
Flax goods	78,200	178,500	245,000	175,000	184,642

Iron.—J. W. Harrison's circular, dated 31st December, states that the past year has not proved advantageous to importers of pig iron, as it was only during the earlier portion of the year that the price obtained here showed any advance over the cost of importation, and during the later months prices showed a decided loss.

Scotch pig iron can now be bought at 1 dol. 50 c. to 2 dol. per ton less than it can be contracted to be loaded for next January or February, this being attributable to the large stock on hand, the supply being almost an exact counterpart of the annual average of the last five years' consumption: hence the outlook forebodes a continuance of low prices, at least until consumption materially increases.

To illustrate how a staple like pig iron fluctuates, he shows that in January, 1883, it sold here at 27 dol. 50 c. per ton when inward freights from Glasgow were less than they are now, whilst 24 dol. 50 c. per ton would be the utmost now obtainable for it. From January to August the prices ranged from 27 dol. to 27 dol. 50 c.; from August to the end of the year from 24 dol. 50 c. to 27 dol. Only the Glengarnock brand is quoted, as it forms 75 per cent. of the entire pig iron melted here.

DICTATION. (1.)

(Time allowed, $\frac{1}{2}$ hour.)

Nothing can be more clear now than the paramount importance of securing to each House of Parliament an absolute authority and freedom of publication. No evil that could possibly arise out of the misuse of such a power could be anything like that certain to come of a state of things which restricted by libel laws or otherwise the right of either House to publish whatever it thought proper for the public good. Not a single measure for the reform of any great grievance, from the abolition of slavery to the passing of the Factory Acts, but might have been obstructed, and perhaps even prevented, if the free exposure of existing evils were denied to the Houses of Parliament. In this country, Parliament only works through the power of public opinion. A social reform is not carried out simply by virtue of the decision of a Cabinet that something ought to be done. The attention of the Legislature and of the public has to be called to the grievance again and again by speeches, resolutions, debates, and divisions, before there is any chance of carrying a measure on the subject. When public opinion is ripe, and is strong enough to help the Government through with a reform in spite of prejudices and vested interests, then, and not till then, the reform is carried. But it would be hardly possible to bring the matter up to this stage of growth if those who were interested in upholding a grievance had the power of worrying the publishers of the Parliamentary reports by legal proceedings in the earlier stages of the discussion. Nor would it be of any use to protect merely the freedom of debate in Parliament itself. It is not through debate, but through publication, that the public opinion of the country is reached. In truth, the poorer a man is, the weaker and the humbler, the greater need is there that he should call out for the full freedom of publication to be vested in the hands of Parliament.

(A second piece was given.)

ARITHMETIC.

(Time allowed, 3 hours.)

1. Simplify $5\frac{1}{2} + 5\frac{1}{2}$ of $\frac{2112}{5\frac{1}{2} - 5\frac{1}{2}}$ of $\frac{2778}{7104}$ of $\frac{2778}{25928} \div \frac{(4\frac{2}{3} - 4\frac{1}{3})}{4\frac{2}{3} + (4\frac{1}{3} \text{ of } \frac{3}{4})}$ of $\frac{3}{4}$
2. A rectangular tank, 9 ft. $7\frac{1}{2}$ in. long, 2 ft. 8 in. deep, and 4 ft. $1\frac{1}{4}$ in. broad, has two pipes connected with it, one of which can supply 1,080 cubic inches of water per minute, while the other can discharge the whole contents of the tank in $3\frac{1}{2}$ hours. If the tank be empty, and both pipes be simultaneously opened, how long will it take to fill it?
3. Reduce $\cdot 962$ of $\cdot 259$ of $\cdot 1636$ of $\cdot 032967$ of $\cdot 6875$ of 27 miles, to yards.
4. A clerk's salary is each year increased by $\cdot 142857$ of that which he has received for the previous year, and for his fourth year of service amounts to £120 1s. Find what it is for his seventh year, and express his first year's salary as a fraction of his seventh year's salary.
5. (a), Transfer 1885 from the scale of 9 to the ordinary scale of 10; (b), divide 65502 by 45, both being in the scale of 7; and (c), find

- which of a series of weights of 1 lb., 2 lbs., 4 lbs., 8 lbs., 16 lbs., &c., must be used in order to weigh 233 lbs., if only one weight of each kind be used.
6. If the volume of a right cylinder is obtained by multiplying its height by $3\frac{1}{2}$ times the square of the radius of its circular end, find (using duodecimal notation) how many cylinders of copper, each $6\frac{3}{4}$ inches long and $2\frac{1}{4}$ inches in diameter, are equal in value to five cubes of iron, each of whose sides is 2 ft. 9 in. long; one cubic foot of copper being worth $9\frac{1}{2}$ cubic feet of iron.
 7. Express $\sqrt[3]{44.6}$ as a decimal of $\sqrt{167.9619}$, obtaining the nearest value to two places of decimals.
 8. If 124 men in $5\frac{1}{2}$ days of 11 hours each dig a trench $232\frac{1}{2}$ yards long, 3 ft. 8 in. wide, and 2 ft. 4 in. deep, in how many days of 9 hours each will 36 men dig a trench $337\frac{1}{2}$ yards long, 5 ft. 7 in. wide, and 3 ft. 6 in. deep; supposing that in the same time each of the second set of men does one-sixth more work than each of the first set?
 9. How many English sovereigns must I have in order that, if I take them to France, and change them into francs, &c., at an exchange of 25 francs 45 centimes for each sovereign, I can spend as much of them as is equal to £16 while there, and by changing the rest into sovereigns on leaving, at an exchange of 25 francs 25 centimes, have as many sovereigns as I began with?
 10. By selling out of the 3 per cents, when they are at 91 $\frac{1}{2}$, and then buying $3\frac{1}{2}$ per cent. stock, I find that I obtain £1 0s. 1 $\frac{1}{2}$ d. of income for every £1 which I previously received. Find the price of the $3\frac{1}{2}$ per cent. stock, one-eighth per cent. brokerage being charged in each transaction.
 11. Four men and 10 boys together do one-half of a piece of work in 6 days. Two more men and 2 more boys having joined them, another one-third of the work is done in the next 3 days; how many more boys must then be put on if the rest of the work is to be finished in one day more?
 12. A. sells some iron to B. at a gain of 5 per cent.; B. sells it to C. at a gain of 4 per cent.; C. to D. at a gain of 3 per cent.; and D. to E. at a gain of 2 per cent. E. receives £1,434 1s. 4.56d.: What did A. give for it?
 13. A's capital exceeds B's by $\frac{4}{100}$ of B's capital. B. puts his out at compound interest for three years at 5 per cent. At what rate per cent. of simple interest must A. put his out in order that, at the end of the three years, the two amounts may be the same?
 14. I pay £212 10s. for a carriage and a pair of horses, one of the horses costing half as much again as the other. If, however, each horse had cost 15 per cent. more, and the carriage 19 per cent. less, the whole amount to be paid would have been unaltered. Find the respective prices of each horse and of the carriage.
 15. Two vessels holding 40 gallons each are both full, the one of two parts of wine mixed with three parts of water, the other of wine and water mixed in a different ratio. One-fourth of the liquid in each vessel is then transferred to the other. The contents of each vessel having been well mixed, one-third of each is again transferred to the other, after which it is found that there are $1\frac{1}{2}$ more gallons of water than of wine in the first vessel. What was the original mixture in the second vessel?

ADDITION.

(Time allowed, $\frac{1}{2}$ hour.)

N.B.—*You had better occupy the whole time allowed.*

No additional marks will be given for rapidity.

Do not copy out the sums.

Add these up, placing the answers in the spaces indicated.

£	s.	d.	£	s.	d.	£	s.	d.
302475	11	6	347786	11	10	541263	9	5
787639	7	7	95016	18	2	98290	2	19
314197	6	5	566984	5	4	267873	13	2
209674	19	11	891174	2	10	189603	2	5
887142	7	9	32410	3	5	24761	18	4
23276	5	9	373041	2	7	89768	12	11
538097	1	2	859276	3	8	99374	5	7
786178	2	4	7624	6	2	3976	15	8
358756	3	7	984917	10	8	232087	9	7
465983	17	11	769873	13	7	815975	16	11
361211	6	7	631902	8	6	748639	7	5
642935	8	1	1983	19	10	41877	19	3
23297	12	5	93257	13	11	658	16	11
69840	3	7	29200	7	9	18759	13	11
90574	2	1	318019	3	8	36197	11	7
31847	1	2	828	17	5	744032	8	6
34232	1	11	298772	2	6	74573	2	4
476239	15	7	17296	13	7	621140	15	6
381397	7	1	22896	10	10	147732	6	2

(Three other sums of this sort were given.)

Add these *across*, placing the Totals in the spaces indicated.

											Total's.
10195	8963	12788	12120	2897	12190	5212	19077	488	2657		
9572	38756	18919	4718	5417	8345	7501	2543	3285	2502		
80631	21555	22279	36567	9665	15670	504	6771	12424	3535		
58992	16228	3657	2779	1350	3985	40914	205	2187	8520		
9505	10075	9735	8577	36095	21944	6259	4425	1488	2469		
19425	1282	247	31932	3891	9026	4725	12980	23473	2957		
6653	18090	6495	4275	6105	6304	5725	7280	17449	1689		
9135	17632	13218	12815	9800	862	19482	880	4525	4869		
14955	7639	31457	7000	9687	3503	2165	913	615	1314		
16760	18215	34209	17568	22916	284	461	3038	323	7400		
2472	13668	14175	1033	4073	11909	9720	15587	7527	329		
27770	3205	969	3620	3001	8270	6252	4145	394	2074		
2152	9298	220	4323	16075	1070	769	2072	290	3640		
487	876	5018	9195	7790	3710	2604	6291	491	535		
6390	2356	2076	930	13276	602	1275	856	6225	457		
14245	1096	830	2199	6537	673	386	1940	486	1405		
13721	819	7485	43986	2406	74	7495	197	210	845		
43958	17945	7803	2573	24293	925	7079	320	770	692		

COPYING MANUSCRIPT.

(Time allowed, $\frac{1}{2}$ hour.)

This consisted of about two pages of foolscap lithograph, difficult to read, and with a considerable number of corrections and abbreviations.

SUBJECTS FOR ENGLISH COMPOSITION.

(Time allowed, 2 hours.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style. Exercises will be valued according to quality rather than quantity, but should occupy at least two foolscap pages. Only one subject is to be attempted.

1. Free Elementary Education; or 2. The distinctive beauties, uses, and modes of culture of different forest trees; or 3. Izaak Walton—man of letters and master of angling.

GEOGRAPHY.

(Time allowed, $2\frac{1}{2}$ hours.)

Extra marks will be given for neatness in maps or diagrams if combined with accuracy.

1. Explain what is meant by Parallels of Latitude and Meridians of Longitude. What phenomena are common to all places situated (1) on the same parallel; (2) on the same meridian? Explain also the following terms, and give two examples of each:—Isthmus, promontory, plateau, delta, watershed.
2. Where do the following rivers rise:—Severn, Rhone, Elbe, Brahmaputra, Nile, Amazon? Trace the course of *two* of them, and mention the principal towns situated in their basins.
3. Give the names of the States in the Balkan Peninsula, with the capital of each.
4. Describe a journey (1) by sea, (2) by land, between Brindisi and Odessa; mentioning in the second case the principal towns and rivers which you would pass, and in the first the islands, promontories, and straits.
5. Where are the following (1) Lakes—Bala, Lucerne, Nyassa, Erie; (2) Capes—Finisterre, Comorin, Bonn, North Foreland; (3) Islands—Heligoland, Anticosti, Vancouvers, Skye; (4) Towns—Dunkerque, Metz, Riga, Kurrachee.
6. Describe the geographical features and situation of *two* of the following districts, including the mountain ranges and river systems:—(1) The six northern counties of England; (2) Spain; (3) India; (4) The English Possessions in North America.
7. Enumerate the chief divisions of the human race, mentioning their peculiar physical characteristics, and stating the portions of the world inhabited by them.
8. Fill up the accompanying outline of Australia, marking on it the provinces, chief towns, rivers, lakes, and capes.

INDEXING.

(Time allowed, 2½ hours.)

Instructions—

1. Continue the index to the letters or inclosures printed below,* on the forms supplied to you, in a style similar to that of the subjoined specimen.
2. The subject-matter of each letter should be stated in as *brief* a compass as possible.
3. Write the index from page 2 to page 10 *inclusive* in one book, and from page 11 to the end in another.

SPECIMEN.

No. of Letter.	Date.	Correspondents.	Subject-matter.
No. 1.	March 17, 1885.	Earl Granville to Her Majesty's Representatives at Berlin, Vienna, Paris, Rome, St. Petersburg, Constantinople, and Cairo.	Announcing the signature by the Ambassadors of the Great Powers of the Egyptian Financial Convention, and of a separate declaration relative to the legality of the Egyptian Government's action in the matter of the sinking fund.
No. 2.	April 13, 1885.	Mr. Scott to Earl Granville.	Reporting that, while Prince Bismarck will take the earliest opportunity of obtaining the sanction of the Reichstag to the joint guarantee of the Egyptian loan, he wishes the loan to be placed in equal portions on the markets of all the guaranteeing countries.

DIGESTING RETURNS INTO SUMMARIES.

(Time allowed, 2½ hours.)

N.B.—(a.) *In assigning marks great importance will be attached to accuracy and neatness.*

No additional credit will be given for completing the paper in less than the time allowed.

(b.) *The paper put before you must not be mutilated in any way. Mistakes should be corrected, but no erasure is to be made.*

* These were letters and enclosures extracted from a Paper presented to Parliament, entitled "Egypt, No. 17 (1885), C. 4447," and occupied about 16 pages.

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(SPECIMEN OF FORM.)

SUMMARY OF RETURNS RELATING TO THE FOREIGN TRADE OF ITALY, IN THE YEAR 1883 AS COMPARED WITH THAT IN 1882.

[illegible]

Calculations may be made on waste paper, which will be provided for that purpose, but no rough copy of any part of the Form is to be made.

Rule a Form (which may be as *wide* as your paper will admit) like the subjoined specimen, and fill up the several columns from the particulars given on pages 3 and 4, observing carefully the following instructions:—

1. That the several categories according to the Customs Tariff as well as their respective numbers are to be entered in the Form in *numerical* order.
2. That all stops and *initial* capitals given in the Specimen of Form are to be exactly reproduced.
3. That all the figures, which cannot be directly copied from page 3, are to be supplied by calculation.
4. That *percentages* are to be calculated in each case to one place of decimals.

RETURNS RELATING TO THE FOREIGN TRADE OF ITALY, 1882 AND 1883.

A.—CATEGORIES ACCORDING TO THE CUSTOMS TARIFF.

XVI. Miscellaneous; V. Hemp, flax and vegetable fibres, other than cotton; X. Paper and books; IV. Colours and dyeing materials; XIII. Stones, earth, earthenware, and glass; VIII. Silk; II. Colonial produce, groceries, and tobacco; IX. Wood and straw; I. Spirits, wine, and oils; XII. Minerals and metals; VI. Cotton; XIV. Cereals; XI. Skins; III. Chemicals, medicines, gums, and perfumery; XV. Animals and animal produce; VII. Wood, hair, and furs.

B.—VALUE, IN FRANCS, OF GOODS EXPORTED IN 1882 AND 1883.

III. (1882) 41,551,008; (1883) 44,772,328.—X. (1882) 10,018,230; (1883) 8,977,494.—XIV. (1882) 137,765,317; (1883) 134,012,998.—V. (1882) 39,693,748; (1883) 44,956,780.—VIII. (1882) 323,457,790; (1883) 305,838,043.—I. (1882) 156,878,964; (1883) 195,253,340.—XVI. (1882) 12,311,072; (1883) 12,510,852.—II. (1882) 6,021,699; (1883) 6,988,709.—XV. (1882) 203,206,239; (1883) 199,352,539.—IV. (1882) 10,524,094; (1883) 13,470,751.—XIII. (1882) 65,834,810; (1883) 70,839,579.—VI. (1882) 26,473,267; (1883) 33,139,506.—XII. (1882) 29,356,091; (1883) 40,154,993.—IX. (1882) 62,146,905; (1883) 65,204,367.—XI. (1882) 20,430,615; (1883) 22,672,663.—VII. (1882) 10,163,190; (1883) 10,515,950.

C.—VALUE, IN FRANCS, OF GOODS IMPORTED IN 1882 AND 1883.

VI. (1882) 192,448,262; (1883) 183,888,053.—XVI. (1882) 43,702,213; (1883) 49,780,266.—VIII. (1882) 93,649,580; (1883) 90,437,612.—I. (1882) 40,305,620; (1883) 59,677,276.—VII. (1882) 94,799,895; (1883) 101,464,600.—XIII. (1882) 87,411,324; (1883) 96,400,338.—II. (1882) 107,824,517; (1883) 98,197,831.—XV. (1882) 95,097,098; (1883) 101,338,385.—V. (1882) 34,553,119; (1883) 36,668,414.—XIV. (1882)

105,877,656; (1883) 117,857,737. — III. (1882) 40,581,953; (1883) 45,352,633. — X. (1882) 8,773,192; (1883) 10,804,861. — IV. (1882) 26,902,563; (1883) 26,309,024. — XII. (1882) 273,864,576; (1883) 254,635,261. — IX. (1882) 47,344,890; (1883) 52,864,472. XI. (1882) 52,376,180; (1883) 55,183,890.

ENGLISH HISTORY.

(Time allowed, 2½ hours.)

1. Narrate briefly the circumstances under which the West-Saxon kingdom annexed to itself the other kingdoms of the Heptarchy.
2. By what measures did Henry II. endeavour to extend the reign of justice and law in every part of his realm?
3. How was Calais acquired, and how was it lost?
4. What were the nature and value of the hereditary claim to the throne possessed by each of the following persons—Edward Plantagenet, Arbella Stuart, and Prince Charles Edward?
5. Name six of the leading men in the Long Parliament, and describe their careers.
6. Of whom did the "Cabal" ministry consist? State what you know of the later history of any of its members.
7. What advantages were secured for England by the Peace of Utrecht?
8. In what manner did Ceylon, the Mauritius, St. Lucia, and Tasmania, become portions of the British Empire?
9. Describe, briefly, the share taken by England in the establishment of Greek independence.

BOOK-KEEPING BY DOUBLE ENTRY.

(Time allowed, 3 hours.)

On the 1st January, 1885, the books of J. Walter were opened with the following balances:—

	£	s.	d.
Business premises, horse and cart, valued at	1,500	0	0
Goods	1,300	0	0
Bill Receivable	300	0	0
Bills Payable	84	6	7
Cash at Bankers	105	3	6
Due by C. Arkwright	85	2	1
" T. Wilson	26	18	8
Due to A. Adams	68	19	6

The following transactions took place during the month:—

	£	s.	d.
1885.			
Jan. 2. Sold C. Gould, goods.	28	3	2
" " Sold C. Arkwright, goods	76	5	4
" 3. Discounted with Moss and Co. E. Allen's bill for £100 and received, and paid into bank, cash	99	12	6
" 4. Received of C. Arkwright his acceptance due 7th Feb. for £150, his cheque for £11, and allowed him 7s. 5d. for discount.	161	7	5
	£		

		£	s.	d.
1885.				
Jan. 5.	Received of T. Wilson, cash	26	10	0
	Viz.:—Account	£26	18	8
	Less Discount.	0	8	8
"	" Advanced to Clerk for petty expenses	5	0	0
"	" 8. Drew from Bank for private expenses	50	0	0
"	" 9. Paid cash for repairs to business premises	6	3	4
"	" 10. Received consignment of goods from Todd and Co., of San Francisco, invoiced at	300	0	0
"	" 12. My horse, valued at £30, died this day	30	0	0
"	" Bought of A. Adams, goods	94	18	3
"	" 13. Bought of E. Long, goods	72	6	9
"	" 15. Accepted A. Adams' draft at one month	130	0	0
"	" 16. Purchased new horse of C. Brett	32	0	0
"	" 17. Sold G. Brown part of Todd and Co.'s consignment	200	0	0
"	" My commission on the above sale	3	0	0
"	" 20. Paid C. Brett by cheque	32	0	0
"	" My acceptance of D. Duncan's draft, due this day, paid by cheque	84	6	7
"	" 22. Sold T. Wilson goods for cash	18	18	2
"	" Settled E. Long's account by cheque	71	2	3
"	" And received from him for discount	1	4	6
"	" 25. Bought of E. Long, goods	84	16	6
"	" 26. Received cheque from T. Willis in payment of his acceptance, due this day	200	0	0
"	" 28. Paid cash for corn and hay for horse	5	16	6
"	" 31. Wear and tear of business premises, estimated at	5	0	0
"	" Allowed Clerk's account for petty expenses for the month	3	4	1
"	" Clerk's salary due this day	8	0	0
"	" Error in charging C. Gould (2nd Jan.) with £28 3s. 2d. instead of £32 8s. 6d., for goods	4	5	4
"	" Forwarded Todd and Co. "account sales" of part of their consignment to me, and advised that I saw no prospect of selling the remainder of which the con- signed value was £125, excepting at a very heavy loss.			

1. In the form of "Cash Book" enter all the cash transactions, and if you are able to do so, all the Bank transactions also. You may employ one or both sets of money columns.
2. Carry all the transactions through the Journal, using one of the two forms provided—"Narrations" are not required.
3. Post all the transactions into the Ledger, inserting the proper folio references.
4. Balance and close the Ledger, showing the Trial Balance (on the form provided) and opening a Balance Account. Goods on hand valued at £1,350.
5. Has the firm gained or lost during the month?
By how much?
6. Was the firm solvent or insolvent on Jan. 31?
By how much?

[The following should not be attempted until you have done all you can of the above. Write your answers on the form provided.]

7. Assuming that on receipt of J. Walter's "Account Sales" and advice (see entries on the 10th, 17th, and 31st January) Todd and Co. instructed him to reship the remainder of the consignment to them, and received notice that he had done so, at a charge of £10 for freight, to be paid by them on arrival, what entry or entries would they require to make in their Journal on the receipt of the goods to complete the record of the transaction and to close the account of their adventure?
8. Would J. Walter make any entry in his Journal on reshipment of the goods to Todd and Co.?
State the reasons for your answer.
9. Assuming that I have accounts with my agents at Lisbon and at Marseilles, and that I am advised by the former, that he has drawn a bill for £100 upon the latter on my account, do I make any entry in my Journal? If so, give it.

SET No. 2.—COMPETITIVE EXAMINATION.

COPYING TABULAR STATEMENT.

The exercise was similar to that at page 41.

DICTATION.

Two pieces were given similar to that at page 42.

ARITHMETIC.

(Time allowed, 3 hours.)

1. Reduce $(9\frac{1}{35} - 7\frac{1}{13})$ of £5,233 8s. 9d. to the fraction of $\frac{1103}{1103}$ of £10,939 10s.
2. A water tank 16 ft. 6 in. long, 8 ft. 4 in. wide, and 6 ft. 3 in. deep, is just sufficient to hold the water which runs into it during a rainfall of 1 inch. If it be connected with an auxiliary tank 7 ft. 6 in. long, 5 ft. 6 in. wide, and 5 ft. deep, for what rainfall will the two tanks then suffice?
3. Reduce to a single decimal ($\frac{1}{3}$ of $\cdot 297 + \frac{1}{3}$ of $\cdot 007$) $\times \frac{31 \cdot 968}{1 \cdot 215571428}$.
4. The compound interest on a sum of money, invested for 3 years at 4 per cent., amounts to £390.4s.; what would the compound interest amount to on the same sum for the same time at 5 per cent.?
5. (1) Transfer the number 355.41 from the scale of 6 to the scale of 10, correctly to 5 places of decimals. (2) Find the square root of 368784.

F. 2

- in the scale of 9. (3) If the area of a rectangle, expressed in the scale of 12, is 333·06 square feet, and the length of one side in the same scale is 22·e feet, what is the length of the other side in feet and inches?
6. The volume of timber in the trunk of a tree is roughly estimated by multiplying the length by the square of the mean quarter girth; the trunk of a certain tree, if cut so as to be 27 feet in length, would have a mean girth of 10 ft. 6 in.; and, if it were cut 10 feet longer, the mean girth would be 9 ft. 9 in.; in the former case the value would be estimated at £5 10s. 3d.; what would it be in the latter?
 7. Four numbers have one factor in common, and there is no other factor which is common to any two of them. Their product is 65,975,910 and their least common multiple 30,030. What is their common factor?
 8. One-sixth of an estate is let at £2 12s. 6d. per acre, five-twelfths at £1 11s. 6d., and one-fourth at £1 1s.; the remainder being let for £31 10s., the average rate of rent for the whole becomes 28s. per acre. Find the rate per acre at which the remainder is let, and the number of acres in the estate.
 9. A coal merchant supplies 7 tons of coal at 20s. per ton, 30 tons at 16s. 6d. per ton, and 10 tons 2 cwt. 3 qrs. 14 lbs. at 15s. per ton; the average cost of the coal was 13s. 4d. per ton. Find (1) the amount of his profit; (2) his gain per cent. correct to two places of decimals.
 10. Having invested a sum of money in 3 per cent. Consols at 100½, I held the stock until I had received a half-year's dividend; I then sold it at 99½ and invested the proceeds of the sale, together with the dividend, so as to produce 3½ per cent.; and my income was thus improved by £9 19s. 6d. per annum. If brokerage amounting to ¼ per cent. be charged upon sales and upon purchases, what sum did I originally invest?
 11. Two persons measure a square field, one of them correctly and the other incorrectly; the latter takes the length of a side of the field to be one pole more than it is, and consequently makes the area to be 1 rood 19 poles too much; what is the true area of the field?
 12. A capital of £25,000 invested in a business employing 100 hands, of which the expenses are £3,375 per annum, yields a net profit of 5 per cent.; it is estimated that the net profit varies as the capital invested, the square root of the number of hands, and the cube root of the expenses jointly; if now £12,500 be added to the capital, 44 to the number of hands, and £721 be the corresponding addition to the expenses, what will the net rate of profit become?
 13. A, B, and C rent a pasture for a year; A puts in 500 sheep for the first half of the year; B, 750 for the second half; and C, 400 all the year round; the feed is considered to be worth twice as much in the first as in the other half of the year. Find (1) what fractional part of the rent each person ought to pay, and (2) the amount to be paid by each when C's share is £21 more than A's.
 14. Zinc ore is purchased at £8 11s. per ton, and copper ore at £17 11s. per ton; 100 parts of the zinc ore contain 54 parts of metallic zinc, and 100 parts of the copper ore contain 27 parts of metallic copper; 5 per cent. of the zinc and 2½ per cent. of the copper are lost in the smelting; if brass be made by mixing the zinc and copper in the proportion of 8 parts to 7, and the coals and labour employed in the

- brassfounding cost $\frac{2}{7}$ as much as the metal, what will be the net cost per ton of the brass?
15. Three men run a mile race; the first beats the last by $76\frac{1}{2}$ yards; the second beats the last by 11 seconds; and the pace of the first is to that of the second as 45 : 44. In what time does each run the mile.

ADDITION.

This Exercise was similar to that given on page 44.

COPYING MANUSCRIPT.

The Exercise set was similar to that referred to on page 45.

SUBJECTS FOR ENGLISH COMPOSITION.

(Time allowed, 2 hours.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style. Exercises will be valued according to quality rather than quantity, but should occupy at least two foolscap pages. Only one subject is to be attempted.

1. John Milton, poet and politician; or, 2. "Everything comes to the man who knows how to wait;" or, 3. The effects upon commerce of mountains and rivers.

GEOGRAPHY.

(Time allowed, $2\frac{1}{2}$ hours.)

Extra marks will be given for neatness in maps or diagrams, if combined with accuracy.

1. Explain very briefly the earth's form and motions, and the phenomena consequent on them.
When it is 11 P.M. at Greenwich on August 31st, what is the exact time at Calcutta $88^{\circ} 20'$ E. Long., and at New York 74° W. Long.?
2. Write down the names of—(1) The straits between North America and Asia, India and Ceylon, Australia and Tasmania, Africa and Madagascar, the Orkney Islands and Scotland, Italy and Sicily; (2) The principal islands in the Mediterranean; (3) The rivers which flow into the Black Sea; (4) Six chief waterfalls, their situations, and the rivers which form them.
3. Where are the following towns, and for what are they in any way important? Bristol, Belfast, Dundee, Toulon, Seville, Dresden, Soha, Mandalay, Adelaide, Ottawa, San Francisco, Tokio?
4. Define the word *Climate*. Mention the principal causes which affect the climate of different regions of the earth, and give illustrations.
5. Select any *two* of the following countries, and write a short account of

- their physical-geographical features; and either by map or description show their boundaries, rivers, and chief towns: Wales, Ulster, France, Canada, China, or Egypt.
6. Of what articles does the principal import and export trade consist, between England and the following towns: Rotterdam, Riga, Buenos Ayres, Lisbon, Smyrna, Melbourne, Rangoon, Odessa?
 7. What rivers rise in the Alps, Rocky Mountains, Himalayas, Vosges, and Altai Mountains? and into what seas do they flow?
 8. Fill up the accompanying map of Italy and the adjacent islands with the names of the bays, rivers, and promontories, and the following towns: Turin, Milan, Verona, Trieste, Alessandria, Messina, Ravenna, Modena, Valetta, Florence, Parma, Marsala, Rome, Leghorn, Naples, Civita Vecchia, Brindisi, Otranto, Ajaccio, Salerno.

INDEXING.

(Time allowed, 2½ hours.)

Instructions—

1. Continue the index to the letters or inclosures printed below,* on the forms supplied to you, in a style similar to that of the subjoined specimen.
2. The subject-matter of each letter should be stated in as *brief* a compass as possible.

DIGESTING RETURNS INTO SUMMARIES.

This Exercise was similar to that given at page 46.

ENGLISH HISTORY.

(Time allowed, 2½ hours.)

1. Give some account of the chief events in the reign of Edward the Confessor.
2. How far is it correct to say that Parliament was founded by Simon De Montfort?
3. Compare the position of the English labourers in the 14th and 16th centuries.
4. Write a description of the personal character of King Alfred or Queen Elizabeth.
5. Describe the course of English colonisation in America.
6. Summarize the constitutional effects of the revolution of 1688.
7. Describe the position of English parties at the end of Queen Anne's reign.
8. What advantages did this country gain by the Seven Years War?
9. What were the chief characteristics of the foreign and domestic policy of William Pitt the Younger?

* These were letters and inclosures extracted from *Parliamentary Paper*, C. 4366 (1885), and occupied about 23 pages.

BOOK-KEEPING BY DOUBLE ENTRY.

(Time allowed, 3 hours.)

On 31st December, 1885, A. Wheeler, being insolvent, effects a composition with his creditors, who agree to accept 10s. in the £, in full discharge of his debts to them, if it be paid immediately. His debts were:—

	£	s.	d.
His acceptance to John Wills. The holder	250	0	0
J. Abraham	226	18	4
C. Freeling	384	6	4
E. Turpin	130	11	8
Landlord for Rent of Office	50	0	0

As a set-off against these debts he had:—

Cash at the London and County Bank	86	15	3
Goods valued at	150	0	0
R. Roberts' acceptance, due 15th January	101	18	6

1886.

On Jan. 1st, in order to carry out his agreement with his creditors, he obtains a loan of £500, at 6 per cent., from E. King who accepts Roberts' acceptance as payment of £100 of the loan.

The following transactions then occur:—

Jan. 1. Paid by cheques on the London and County Bank in settlement of their accounts:—

" " John Wills, for my acceptance	125	0	0
" " J. Abraham	113	9	2
" " C. Freeling	192	3	2
" " E. Turpin	65	5	10
" " Landlord	25	0	0
" 2. Bought of T. Sanders, goods	232	16	6
" 3. Bought of E. Phillips, goods	325	10	5
" " Drew cheque for office cash	30	0	0
" 4. Consigned to A. Sumatrez of Libson, per ss. "Alba," to be sold by him, on my account, goods, invoiced at	500	0	0
" " Freight, cartage, and insurance on above shipment	23	5	6
" 5. Sold E. Warburton, goods	84	13	4
" " Sold, T. Smith, goods	162	6	2
" 6. Paid cash for insurance on shipment to Lisbon	10	0	0
" 8. Received T. Smith's acceptance at one month	162	6	2
" 9. Discounted with Howel, James and Co., T. Smith's acceptance, and received cash	160	5	6
" " Paid into London and County Bank	160	5	6
" 10. Bought of C. Freeling, goods	342	13	4
" " Accepted E. Phillips' draft at two weeks	325	10	5
" 12. Paid cash for cartage on shipment to Lisbon	3	2	6
" 15. Remitted to C. Freeling, in part payment, my cheque for	200	0	0
" " Discount allowed by C. Freeling	5	0	0
" 18. Received "account sales" from A. Sumatrez, showing that the goods consigned to him had been sold for	684	18	6
" " And that his commission thereon was	8	12	6

	£	s.	d.
1886.			
Jan. 20. Sold J. Abraham, goods	236	13	3
„ 22. A. Sumatrez accepts my draft, due 10th February .	400	0	0
„ 23. Discounted with the London and County Bank A. Sumatrez' acceptance, due 10th Feb., and was credited cash proceeds thereof	393	2	6
Discount being charged at	6	17	6
„ 27. Paid my acceptance due this day	325	10	5
„ 29. Received cash for waste paper	1	2	1
„ 31. Paid cash for Clerk's salary to date	10	0	0
„ „ Paid cash for sundry office expenses	3	2	1
„ „ Interest on loan for one month	2	0	0

1. In the form of "Cash Book" enter all the cash transactions, and, if you are able to do so, all the Bank transactions also. You may employ one or both sets of money columns.
2. Carry all the transactions through the Journal, using one of the two forms provided.—"Narrations" are not required.
3. Post all the transactions into the Ledger, inserting the proper folio references.
4. Balance and close the Ledger, showing the Trial Balance (on the form provided) and opening a Balance Account. Goods on hand valued at £200.
5. Has A. Wheeler gained or lost during the month?
By how much?
6. Was A. Wheeler solvent or insolvent on Jan. 31?
By how much?

[The following should not be attempted until you have done all you can of the above. Write your answers on the form provided.]

1885.

7. Jan. 1. Received advice of C. Trueman to insure £4,000 on his account for goods per ss. "Stork," West Master, from Demerara to London, which insurance I have effected at Lloyd's as follows:—

Webster and Savage have written	£2,000	0	0	
Williams and Waterlow	„	£1,000	0	0
Trapp and Trotter	„	£1,000	0	0

 at six guineas per cent., underwriters to return one and a half per cent. on safe arrival of the ss. "Stork."

Bearing in mind that Insurance Brokers, whilst they charge their employers with guineas, credit the underwriters with pounds, what Journal entry would be made for the above transaction?
8. Feb. 15. Arrived ss. "Stork," West, from Demerara. Would the Insurance Broker make any entry in his Journal on receipt of this intelligence? If so, give it.

EXCISE AND INLAND REVENUE APPOINTMENTS.

THE Examination for Second Class Assistants of Excise is now the only door of entry to the various branches of the Inland Revenue department, including all the posts in the Excise itself, Surveyors of Taxes, clerkships of all grades at the head offices Somerset House and in Dublin and Edinburgh, the staff of the Chemical Laboratory, &c. Success in the entrance Examination opens up a wide field in which men of various tastes will find plenty of scope for ability and the opportunity of rising to a good position.

The regulations for the examination for Assistants of Excise are as follows:—

1. The limits of age for this situation are 19 and 22. Candidates must be of the prescribed age on the first day of the month in which the Examination is held.

2. Candidates must be unmarried and without family.

3. No person who has been previously successful in an Examination for the situation of Assistant of Excise, and has passed into actual employment in that capacity, will be eligible to compete.

4. The Examination will be in the following subjects, viz.:

(A.) <i>Obligatory</i> :		Marks.
1. Handwriting		400
2. Orthography		400
3. Arithmetic (to Vulgar and Decimal Fractions)		400
4. English Composition		400

(B.) *Optional* :

5. Higher Arithmetic, including Mensuration, Square and Cube Root, &c.	400
6. Geography, especially that of the British Isles	400

5. A fee of £1 will be required from each candidate attending the Examination.

6. Application for permission to attend an Examination must be made at such times and in such manner as the Commissioners may appoint.

7. Each Examination will have reference to such number of vacancies as may be specified in any notice of such Examination published, with the approval of the Lords of the Treasury, in the *London Gazette*. The Examinations are held in London, Edinburgh, Dublin, Liverpool, Bristol, Plymouth, Leeds, Birmingham, Norwich, Cardiff, Glasgow, Dundee, Aberdeen, Cork, Galway, Belfast, Londonderry, and Limerick.

About 200 vacancies occur annually.

The Excise.—The prospects in the Excise Service may be described separately, as, should a successful candidate decide to confine his aspirations to the outdoor establishments of the department, he cannot after a few years with any advan-

tage enter another branch. Second Class Assistants receive a salary of £50 per annum, with an allowance of 2s. per diem when on duty, or 3s. when there is travelling to be performed. The earnings of an assistant in the first grade average about £80 to £95 per annum. A good deal of the work in England is in connection with breweries, and in Ireland and Scotland with distilleries. The Second Class Assistant, when "actively employed," performs the same duties as a Ride or Division Officer, and a good deal of change and travel is usual. Night work has sometimes to be performed, but the duties are not laborious, and the hours are arranged so as to make them as light as possible. Second Class Assistants become First Class Assistants in order of seniority, and in the higher position they receive a fixed salary of £95 per annum. Some time ago four to five years was about the average time in which assistants expected to become Ride Officers; but promotion has been unusually slow for the past few years, and a longer period of service has had to be passed in the lower position. Assistants become Ride Officers also in order of seniority, and as such receive a salary commencing at £110 and rising by £5 annually to £130, with £40 additional as horse allowance, and subsistence allowance not exceeding £19 10s. per annum. Promotion to the next rank—Division Officers—is also by seniority, the scale of salary being £155 by £5 annually to £170, then by £7 10s. annually to £200. Division Officers have to pass an examination (principally in the duties of the department) for promotion to the temporary rank of Examiner, which is held for about two years as a preparation for the Supervisorship. Examiners are generally employed in officiating for sick or absent Supervisors. The rank of Supervisor is not, as a rule, reached before eighteen to twenty years' service. Second Class Supervisors commence at £230, and rise by £10 annually to £270, with £55 as horse allowance, and subsistence allowance not exceeding £52 per annum. First Class Supervisors commence at £280, and rise by £10 annually to £320, with subsistence allowance not exceeding £52 per annum. The Collectorship cannot be reached much before thirty years' service, and candidates have to undergo a severe departmental Examination. The Excise Establishment consists of the following :—

850 First and Second Class Assistants . at £50 and £95
 1077 Ride Officers „ £115—£5—£130

1408 Division Officers	at £155—£5—£170, then by £7 10s. to £200
266 Second Class Supervisors	£230—£10—£270
172 First Class Supervisors	£280—£10—£320
21 Assistant Inspectors	£350—£10—£400
46 Third Class Collectors	£450—£10—£500
27 Second Class „	£550—£20—£650
13 First Class „	£700—£20—£800
12 Inspectors	Various.

Members of the Excise Service are liable to service in any part of the United Kingdom, and promotion is generally accompanied by removal. The removal expenses of officers and their families are in such cases paid by the Board of Inland Revenue.

Clerkships (Lower Division) at the Head Office, &c., Inland Revenue.—To obtain a place in the Clerical Establishment at the head office, and in other branches of the Inland Revenue Department, it is now necessary to enter as a Second Class Assistant of Excise. After not less than three years' service as an ordinary member of the Excise branch, an assistant or officer may apply to be permitted to compete in one of the Examinations held periodically by the Board for these clerkships. The subjects are :—

	Marks.
Correspondence	100
Précis	100
Excise Laws and Regulations	100
Arithmetic	100

Up to the present the competition has not been at all severe.

The following Table shows the marks obtained by the first candidate and the last successful candidate in two recent Examinations held for Clerkships at Somerset House.

No. on List of Successful Candidates.	Correspondence.	Précis.	Excise Laws and Regulations.	Arithmetic.	Total.
Maximum .	100	100	100	100	400
1	90	70	84	99	343
6	80	40	75	57	252
1	80	90	81	61	312
12	90	36	76	79	281

The prospects before the Lower Division clerks at the head office includes the chance of rising to the higher posts in the department, for in the Inland Revenue it is unlikely that any of the superior clerical appointments will be filled under the Class I. Examination. Up to the present no appointment under this Examination has taken place to any part of the Clerical Establishments.

The following shows the staff in three of the principal departments open to Lower Division clerks appointed in this manner.

SECRETARIES' OFFICE—

2 Secretaries	at £1,200
4 Assistant Secretaries	„ £800 to £900
7 Principal Clerks	„ £650 „ £700
22 Upper Division Clerks	„ £100 „ £400
Duty Pay to 18 of these in sums of . .	£50 „ £200
50 Lower Division Clerks	£90 „ £250
Duty Pay to various clerks of this Division.	

LEGACY DUTY OFFICE—

4 Superior appointments.	
4 Principal Clerks	at £600 to £700
81 Upper Division Clerks	„ £100 „ £400
Duty Pay to 38 of these in sums of . .	£50 „ £100
32 Lower Division Clerks	„ £95 „ £250
Duty Pay to 4 of these in sums of . .	£50 „ £100

ACCOUNTANT GENERAL'S OFFICE—

2 Superior appointments.	
6 Principal Clerks	at £520 to £620
31 Upper Division Clerks	„ £100 „ £400
Duty Pay to 11 of these in sums of . .	£80 „ £120
63 Lower Division Clerks	„ £95 „ £250
Duty Pay to 21 of these in sums of . .	£50 „ £100

Surveyors of Taxes.—To become an Assistant Surveyor of Taxes and afterwards a Surveyor of Taxes, it is also necessary to enter as a Second Class Assistant of Excise. It is then necessary to become a Lower Division clerk, under the regulations referred to above. The Assistant Surveyorship is open to Lower Division clerks serving in the Inland Revenue Department under regulations framed by the Board in 1886.

The following is a copy of these regulations, which were set forth in a General Order, dated 28th May, 1886:—

Each appointment of a Lower Division Clerk to be an Assistant Surveyor of Taxes will be made by the Treasury on a special recommendation by the Board.

Any Lower Division Clerk, therefore, who is desirous of being appointed an Assistant Surveyor of Taxes, may, after he has completed nine years' service, petition the Board for such promotion. He must state in his Petition his age, length of service, and the nature and extent of his experience in Tax Revenue business. He must have served not less than a year in a Surveyor's Office. The Petition must be forwarded through his superior officer, who will report on it as to the Petitioner's health, general conduct, and official qualifications.

These Petitions will be recorded, and when vacancies occur the claims of all those who have fulfilled the necessary conditions will be carefully considered.

All candidates will be subject to an elementary Competitive Examination among themselves in Tax Law.

It will be requisite, as heretofore, that Assistant Surveyors should pass an Examination in the Law and Practice relating to Taxes, before they can be recommended for a Commission as Surveyor of Taxes.

A number of Lower Division clerks are employed in the offices of Surveyors of Taxes throughout the country, and clerks of this Division employed in other branches of the department may apply for transfer to a Surveyor's office to qualify as candidates for the Assistant Surveyorship under the rule which requires one year of service in a Surveyor's office.

A Lower Division clerk on becoming an Assistant Surveyor carries his salary with him, and exchanges his triennial increment of £15 to one of £37 10s. Assistant Surveyors have for some time past become Surveyors in from three to five years. The minimum salary for a Surveyor is £200 per annum, rising by £37 10s. triennially to £400, with prospect of duty pay not exceeding £200 per annum.

The Tax Surveying Establishment consists of the following :—

5 Inspectors	at £550 to £800
267 Surveyors and Assistant Surveyors	£100 „ £400
Total of Duty Pay allowances to these	£6,000
54 Lower Division Clerks	£95 „ £250

Surveyors and Assistant Surveyors of Taxes are liable to service in any part of the kingdom, and as a rule they only remain a few years in each district. They are generally stationed in large towns, and a district often embraces a large extent of country. Travelling and removal expenses are paid by the Board of Inland Revenue. Surveyors receive first class travelling expenses.

The Inland Revenue Laboratory.—Assistants of Excise who have had six months' service, may petition the Board to compete in the yearly examination held in July or August for entrance to the Laboratory. Candidates must have been twelve months in the Service when the examination is held, and be of a rank not higher than First Class Assistant. About seven or eight vacancies are offered annually. The competition averages three or four candidates to each vacancy. The nature of the examination may be judged from the following papers set in a recent examination.

(Time allowed, 7 hours.)

Three questions *only* to be answered in each of the groups marked A and B, and two in each of the groups marked C and D. The *last* question on the paper to be answered, and the working of the answers to all mathematical questions to be given in full.

The number given at the end of each question indicates the value attached to the correct answer.

GROUP A (31 marks).

1. What is meant by analysis and synthesis, and describe the modern synthetical method of determining the composition of water by volume? (8)
2. Define the terms "chemical symbol," "combining weight," "chemical formula," and "chemical equation." (8)
3. Name the two great sub-divisions into which the science of chemistry is usually divided, and point out the irrational nature of the sub-divisions. (7)
4. Describe the main properties of water. State to what the hardness of water is due, and how hard water may be softened. (8)

GROUP B (40 marks).

1. How may chlorine be prepared from common salt, and how does chlorine act as a bleaching agent? (10)
2. State how the modern lucifer match is made, and to what respect it differs from the old brimstone match. (10)
3. Describe what experiments you would consider necessary to show to a class that in the ordinary burning of a candle no loss of matter occurs. (10)
4. You have given to you a sample of brewers' worts supposed to contain added sugar. Give an outline of the examination necessary to prove the presence or absence of added sugar. (10)

GROUP C (24 marks).

1. At what temperature is the number on the scale the same of—
 (a) The Centigrade and Fahrenheit thermometer;
 (b) The Fahrenheit and Reaumur thermometer? (8)

2. The specific gravity of mercury at 0° is 13.6. Required the volume of 50 kilogrammes at 85° . The coefficient of expansion is $\frac{1}{3356}^{\circ}$. (8)
3. Define the standard of temperature and of pressure for gases, and describe fully the method of determining the density of gases. (8)

GROUP D (18 marks).

1. Given $\sqrt{2x+1} + 2\sqrt{x} = \frac{21}{\sqrt{2x+1}}$, to find the value of x . (5)
2. There is a number consisting of three digits, the first of which is to the second as the second to the third. The number itself is to the sum of its digits as 124 to 7. If 594 be added to the number the digits will be inverted. Required the number. (7)
3. There are three numbers in arithmetical progression, and the square of the first added to the product of the other two is 16; the square of the second added to the product of the other two is 14. What are the numbers?
Divide a given straight line into two parts so that the rectangle contained by the whole and one of the parts shall be equal to the square of the other part. (5)

The permanent staff in the Laboratory is not large, and after a few years most of the students prefer to return to the outdoor department, their chemical training giving them certain advantages in their subsequent career.

The following Table shows the marks obtained by the first candidate and the last successful candidate in examinations recently held for entrance to the Inland Revenue Department, in the position of Second Class Assistant of Excise.

—	Arith- metic (Test).	Com- pound Addition.	Ortho- graphy.	Hand- writing.	English Com- position.	Higher Arith- metic and Mensura- tion.	Geo- graphy.	Total.
Maximum	300	100	400	400	400	400	400	2400
July 1886.								
No. 1 .	300	100	400	313	245	400	234	1992
„ 80 .	294	100	325	288	255	356	147	1765
Nov. 1886.								
No. 1 .	276	72	400	279	247	301	231	1806
„ 50 .	278	100	400	298	232	188	180	1676

ASSISTANTS OF EXCISE.

EXAMINATION PAPERS.

SET No. 1.

COPYING.

(Time allowed, $\frac{1}{2}$ hour.)

Copy, on the form supplied, as much of the following, including the table of figures, as you can in half an hour, taking care to write as well as you can.

TRADE AND COMMERCE.

PHILADELPHIA.

GRAIN.—The grain trade of Philadelphia showed an increase during the year 1883. The receipts at this port of all kinds of grain in 1882 were 14,912,854 bushels, while in 1883 they were 17,240,760 bushels; an increase of 2,327,816 bushels. This increase, however, still left the trade much below the year 1881, which showed the receipts of 24,369,967 bushels.

The following tables show the receipts at the port of Philadelphia of the various cereals:—

Year.	Grain.	Corn.	Rye.	Barley.	Oats.
1878 . .	11,394,300	22,832,900	242,200	831,400	3,051,600
1879 . .	20,074,100	18,297,000	687,775	952,000	3,499,800
1880 . .	15,123,330	24,950,750	117,000	1,019,600	3,638,760
1881 . .	8,312,605	11,145,367	107,537	1,211,900	3,432,089
1882 . .	6,732,872	3,801,100	50,512	894,500	3,082,482
1883 . .	5,038,135	7,657,490	10,500	1,053,500	3,417,100

FLOUR.—The receipts of flour at Philadelphia during the year 1883 show a considerable increase over 1882, reaching 1,348,959 barrels. The trade was moderately active, and the prices ruled low most of the year, owing, in a great measure, to the low price of wheat. They opened with "Pennsylvania family" selling at 4 dol. 50 c. to 4 dol. 75 c., closing at 4 dol. 75 c. to 5 dol. per barrel. "Patent flours" from the north-west continued to be well received. These flours are made from spring wheat by what is called the "patent process." The flour mills in and about Philadelphia had a fair business during the year.

The year's results in trade did not carry out the expectations entertained at the beginning, and 1883 was a year of steady depression in all branches without any great revulsions. Over-production was the prime cause, nearly all manufactured goods having been largely in excess of demand, engendering a competition which brought down the profits to a minimum, and in many kinds of goods to a price below the cost of manufacture.

DICTIONARY.

(Time allowed, $\frac{1}{2}$ hour.)

Ronald made more than human exertions to overtake the special object of his pursuit, who was still in his sight, striving, by voice and example, to renew the battle, and bravely supported by a chosen party of spearmen. Several of his comrades attached themselves to Ronald, much marvelling at the extraordinary gallantry displayed by so young a soldier. On the very brink of the breach Count Hubert—for it was himself—succeeded in effecting a momentary stand, and repelling some of the most forward of the pursuers. He had a mace of iron in his hand, before which everything seemed to go down, and was so much covered with blood that it was almost impossible to discern the bearings on his shield. Ronald now found little difficulty in singling him out; for the commanding situation of which he had possessed himself, and the use he made of his terrible mace, caused many of the assailants to seek safer points of attack than that where so desperate a defender presented himself. But Ronald, to whom the importance attaching to victory over this formidable antagonist was better known, sprang from his horse at the bottom of the breach, and, letting the noble animal run loose through the tumult, ascended the ruins to measure swords with his savage foe. The latter, as if he had seen his intention, turned towards the young Scotchman with mace uplifted; and they were on the point of encounter when a dreadful shout of triumph, of tumult, and of despair, announced that the besiegers were entering the city at another point, and in the rear of those who defended the breach. Assembling around him, by voice and bugle, the desperate partners of his desperate fortune, Count Hubert, at those appalling sounds, abandoned the breach, and endeavoured to effect his retreat towards a part of the city from which he might escape to the other side of the river.

ORTHOGRAPHY.

(Time allowed, $\frac{1}{2}$ hour.)

Copy the following passage clearly and legibly, correcting mistakes of spelling, but not otherwise altering either the words or their order.

Sir Jasper exhorted the company to whet their appetites to the dinner by a brimming cup to his Majesties health, filled as high and as deep as their gobblers would permit. In a moment all was bustle, with the clang of wine cups and of flaggons. In another moment the guests were on their feet like so many stews, all hushed as death, but with eyes glancing with expectashun, and hands outstretched, which displac'd their loyall brimmers. The voice of Sir Jasper, clear, sonorous, and emphatic as the sound of his war-trumpet, announced the health of the restored Monarque, and was hastily echoed back by the assemblage, impatient to render it due homage. Another brief pause was filled by the draining of their cups, and the mustering breath to join in a shout so loud, that not only the rafters of the old hall trembled while they echoed it back, but the garlands of oken bowse and flours with which they were decorated, waived wildly, and ruffled as if agitated by a sudden whirlwind. This duty observed, the company proceeded to assale the good cheer with which the table groaned, animated as they were to the attack both by merrith and melody, for they were attended

by all the mynstrells of the district, who had been put to sighthence during the Commonwealth. The social occupation of good eating and drinking, the exchange of plegges betwixt old nayboors who had been fellow soldiers in the moment of resistance, soon wiped from their memory the trying cause of complaint, which in the minds of some had darkened the festivity of the day; so that when the lady of the house walked into the hall, accompanied by the children and her female attendants, she was wellcummed with the acclamations due to the mistress of the banquet and of the Castle—the dame of the noble Knight, who had led most of them to battle with an undawnted and perseveering valloour, which was worthy of better success.

ARITHMETIC (to Vulgar and Decimal Fractions).

(Time allowed, 2 hours.)

You are requested to put the number to each question, and to send up the working as well as the answers.

N.B.—(1) *You are particularly recommended to answer the questions in the order in which they are set; not omitting any one unless you are unable to do it.*

(2) *You should occupy the whole time allowed. No extra marks will be given for completing your answers in less than the time allowed.*

1. Add together $3\frac{1}{2}$, $2\frac{1}{7}$, $\frac{3}{10}$, and $\frac{1}{3}$.
2. Subtract $12\frac{1}{4}$ from $21\frac{1}{10}$.
3. Multiply $8\frac{1}{2}$ by $9\frac{3}{4}$.
4. Divide $4\frac{1}{2}$ by $\frac{1}{10}$.
5. Add together $56\cdot814$, $11\cdot0917$, $8\cdot0931$, and $683\cdot25496$.
6. Subtract $84\cdot7356$ from $98\cdot107$.
7. Multiply $25\cdot6073$ by $\cdot00857$.
8. Divide $41\cdot16$ by 1680 .
9. Reduce $\cdot0563$ of 1 furlong 3 poles to yards and the decimal of a yard.
10. Reduce 2 acres 1 rood 3 perches 5 sq. yards to square inches.
11. If 1 cwt. 1 qr. 7 lbs. of tea cost £80 17s., what is the price per lb.?
12. Find (by Practice) the dividend on £375 15s. at 14s. 9d. in the £.
13. What is the simple interest on £960 for $3\frac{1}{2}$ years at $2\frac{1}{2}$ per cent. per annum?
14. Add together $4\frac{1}{2}$, $\frac{1}{3}$, $1\frac{1}{10}$, and $\frac{1}{5}$.
15. Subtract $19\frac{1}{4}$ from $28\frac{3}{8}$.
16. Multiply together $1\frac{1}{10}$, $8\frac{1}{3}$, $\frac{7}{15}$, and $1\frac{1}{2}$.
17. Divide $\frac{2}{3}$ by $12\frac{1}{4}$.
18. Add together $94\cdot63$, $\cdot07985$, $9\cdot8112$, $16\cdot97$, and $\cdot84945$.
19. Subtract $8\cdot09726$ from $9\cdot007321$.
20. Multiply $\cdot097653$ by $50\cdot863$.
21. Divide $43\cdot8071$ by $8\cdot37$ to three places of decimals.
22. Express 1 qr. 7 lbs. as the decimal of half a ton.
23. In 240731 pints how many bushels, pecks, gallons, &c.?
24. If 3 acres 1 rood 17 perches of land can be bought for £134 5s. what must be paid for 11 acres 3 roods 9 perches of the same land?

25. Find (by Practice) the value of 3 cwt. 2 qrs. 15 lbs. 8 oz. at £9 6s. 8d. per cwt.
26. Find the amount of £3000 in 3 years at $3\frac{1}{2}$ per cent. per annum compound interest (neglecting fractions of a penny).
27. Add together $8\frac{1}{4}$, $1\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{15}$.
28. Subtract $43\frac{3}{8}$ from $51\frac{1}{15}$.
29. Multiply together $4\frac{1}{3}$, $\frac{1}{3}$, $1\frac{2}{3}$, and $1\frac{1}{3}$.
30. Divide $16\frac{1}{3}$ by $\frac{1}{3}$.
31. Add .0765 of 3 ounces to .683 of a pennyweight, and give the answer in grains and the decimal of a grain.
32. Subtract .034 of £1 10s. from .621 of half-a-crown, and express the answer in pence and the decimal of a penny.
33. Multiply .247 by 2.571428, and express the answer as a decimal.
34. Divide 5.63 by 18.7, and express the answer as a decimal.
35. Reduce $\frac{3}{4}$ of .69 of 1 day 3 hours to minutes and the decimal of a minute.
36. Reduce 3 lbs. 2 oz. 5 dwt. to grains troy.
37. If A can walk 33 miles in 8 hours, and his rate is half as fast again as B's, how long would it take B to walk 27 miles?
38. Find the cost of 13424 articles at 5s. $4\frac{1}{2}$ d. per dozen.
39. At what rate per cent. per annum simple interest will £158 amount to £185 13s. 0d. in 5 years?

ADDITION.

(Time allowed, $\frac{1}{2}$ hour.)

This Exercise was similar to that on page 44.

SUBJECTS FOR ENGLISH COMPOSITION.

(Time allowed, 2 hours.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style.

1. Temper; or, 2, Sport and Cruelty; or, 3, Walking Tours.

The Composition should fill not less than two folio pages.

HIGHER ARITHMETIC. (Optional.)

(Including Mensuration, Square and Cube Root, &c.)

(Time allowed, 3 hours.)

1. Find the square root of $\frac{.00125}{.18}$. Find the value of $5\frac{1}{2} + \frac{1}{3}$ of £5 + $2\frac{1}{2}$ of $1\frac{1}{2}$ of $\frac{1}{4}$ of 5s. 3d.; also of .428571 of £2 9s. $10\frac{1}{2}$ d., and reduce it to the decimal of £1 3s. 6d. (correctly to six places of decimals).
2. A room 27.7 feet long, 19.55 feet wide, and 12.4 feet high is hung with paper. If the paper is 2.7 feet wide, what will be the cost at 1s. 3d. per yard?

3. To pay off a debt in a certain number of years £63 12s. 6d. has to be raised for every £1000 of debt. An assessment of one penny per pound of rental brings in £130. Find to the nearest penny the assessment required to pay off a debt of £18,000 in the given time.
4. In Paris a sovereign is worth 25 francs 10 centimes, and in London a 20 franc piece is worth 15s. 3d. What is gained or lost by changing £100 in Paris, and changing their French equivalent back into English money in London?
5. Simplify $\frac{3872}{92807} : \frac{15}{16} - \frac{14}{15} + \frac{13}{14} - \frac{11}{12}$ and $\frac{5\frac{1}{2} \div \frac{2}{3}}{(1\frac{1}{2} \text{ of } \frac{1}{2}) \div 10\frac{1}{2}} \times \frac{2}{3}$ of $\frac{1\frac{1}{2} \text{ of } 4\frac{1}{2}}{13\frac{1}{2} \text{ of } 5\frac{1}{2}}$.
6. Find, approximately, the length of the side of a square which is equal in area to a rectangle 660 yards long and 376 yards broad.
7. Roman silver coin is $\frac{29}{30}$ of pure silver, and standard silver is $\frac{37\frac{1}{2}}{40}$ ditto: what will be the value of the silver in 250 denarii (Roman coin) of 60 grains each at the rate of 5s. 3d. per oz. standard?
8. The earth's diameter is 7912 miles, and the volume of the sun is 1,250,060 times that of the earth; find, approximately, the sun's radius.
9. A block of wood is 7 feet long, 2 broad, and $1\frac{1}{2}$ wide. Find the length of its diagonal; and also the area of a superficies made by a plane going through two opposite edges of 2 feet.
10. Find the present worth of £2065 at $4\frac{1}{2}$ per cent. per annum due in two years and one month. Also find, approximately, the discount, at the same rate of interest, on £504 17s. $4\frac{1}{2}$ d. paid 105 days before the amount is due.
11. A tradesman sells his goods at $22\frac{1}{2}$ per cent. above cost price, but allows for ready money a discount of 5 per cent. on the price charged. What profit does he make on a ready-money customer's payment of £285 17s. 8d.
12. A cistern can be emptied by three taps, A, B, and C; A and B discharge water at the rate of 37 and 40 gallons per hour respectively, and are allowed to run for five minutes, when they are partially turned off and discharge 7 gallons per hour less than before; they run thus for ten minutes, when A is turned off completely, and C, which discharges 30 gallons per hour, is turned on, with the result that the cistern is emptied of its contents in 33 minutes from the commencement of operations. Find its contents.
13. A cannon consists of a frustum of a cone 10 feet long formed of steel with a cylindrical bore of 6 inches diameter, the external diameter of one end being 12 inches, and of the other 24 inches—the larger end being closed with a solid hemisphere of steel, whose base coincides with the larger end of the frustum. The density of steel being eight times that of water, and 1000 oz. of water measuring a cubic foot, find the weight of the gun.
14. Two men, A and B, begin at the same time to run opposite ways once round a circular course, starting from the same point. From the moment at which they first meet A takes 63 seconds to finish the round, B 84 seconds. But whereas A ran at a uniform rate the whole way, B mended his pace in the ratio 4 : 3 from the moment at which they first met. Find the time each takes to run the whole course.

GEOGRAPHY (especially of the British Isles). (Optional.)

(Time allowed, 2½ hours.)

Extra marks will be given for neatness in map-drawing, but only so far as it is accompanied by accuracy.

1. Describe the physical characteristics of Northumberland, Derbyshire, Cornwall, and the Channel Islands. Mention their chief products.
2. Draw a map of Wales; on it show, by their names, the positions of the counties into which it is divided, and of those English counties by which it is bounded; also name the chief bays on the coast.
3. Name eight of the principal canals in England and Scotland, and the rivers or places which they unite.
4. In what consist the trade and the importance generally of Glasgow, Waterford, Dundee, Huli, Cork, Halifax, Manchester, Plymouth, and Barrow-in-Furness?
5. Name in order, from north to south, the inlets on the east coast of Ireland, the rivers flowing into them, and the towns of note situated in or near them.
6. Give reasons for the commercial prosperity of Archangel, Nantes, Sydney, Cadiz, Bombay, Batavia, Alexandria, Trebizond, and Winnipeg.
7. Explain, by reference to the contiguous districts, or in any other way, the situation of Silesia, Liberia, Bulgaria, Yemen, Bhootan, Ohio and Nicaragua.
8. Enumerate the Asiatic and African possessions of Continental European Powers.
9. On the accompanying outline map, mark the chief political divisions of Italy. Show the following capes: Passaro, Bon, Corso, and Leuca. Name the principal islands and place the following towns and mountains: Rome, Leghorn, Naples, Ravenna, Milan, Trieste, Tunis, Fiume, Cagliari, Valetta, Etna, Vesuvius.

ARITHMETIC (to Vulgar and Decimal Fractions).

(Time allowed, 2 hours.)

1. Add together $9\frac{4}{11}$, $\frac{5}{11}$, $3\frac{1}{11}$, and $1\frac{3}{11}$.
2. Subtract $5\frac{1}{11}$ from $7\frac{1}{11}$.
3. Multiply $2\frac{2}{3}$ by $12\frac{1}{2}$.
4. Divide $3\frac{2}{3}$ by $13\frac{1}{3}$.
5. Add together $59\cdot418$, $3\cdot10917$, $\cdot080931$, and $386\cdot9541$.
6. Subtract $89\cdot598735$ from $95\cdot1092$.
7. Multiply $37\cdot25731$ by $\cdot09305$.
8. Divide $\cdot7394592$ by $125\cdot12$.
9. Reduce $\cdot0317$ of £3 1s. $2\frac{1}{2}$ d. to pence and the decimal of a penny.
10. In 79345671 square inches how many acres, roods, square poles, &c.?
11. If 2 tons 14 cwt. 1 qr. 27 lbs. 9 oz. of a certain article cost £305 3s. $6\frac{1}{2}$ d., what will 7 cwt. 3 qrs. 3 lbs. 15 oz. cost?
12. Find (by Practice) the value of 52761 articles at 13s. 9d. per dozen.

13. What is the simple interest on £1100 for $5\frac{1}{2}$ years at $3\frac{1}{2}$ per cent. per annum?
14. Add together $4\frac{1}{2}$, $1\frac{11}{16}$, $6\frac{3}{8}$, and $11\frac{4}{8}$.
15. Subtract $18\frac{3}{4}$ from $25\frac{1}{16}$.
16. Multiply together $\frac{3}{8}$, $1\frac{1}{4}$, $1\frac{3}{4}$, and $1\frac{7}{8}$.
17. Divide $\frac{3}{8}$ by $3\frac{3}{4}$.
18. Add together 93·64, ·79805, 19·0183, 1·796, and ·013785.
19. Subtract 5·93578 from 8·018639.
20. Multiply ·597321 by 65·091.
21. Divide 16·239915 by ·501.
22. Express $10\frac{1}{2}$ hours as the decimal of $\frac{1}{2}$ of a week.
23. In 731572 pints how many quarters, bushels, pecks, gallons, &c.?
24. Find a fraction which bears the same proportion to $\frac{1}{7}$ that $\frac{1}{3}$ does to $\frac{2}{3}$?
25. Find (by Practice) the value of 3 lbs. 11 ozs. 6 dwts. 15 grs. at £2 per pound.
26. Find the amount of £2000 in 3 years at $4\frac{1}{2}$ per cent. per annum compound interest (neglecting fractions of a penny).
27. Add together $6\frac{3}{8}$, $3\frac{5}{8}$, $1\frac{3}{8}$, and $11\frac{1}{8}$.
28. Subtract $56\frac{3}{4}$ from $59\frac{1}{8}$.
29. Multiply together $5\frac{2}{3}$, $4\frac{1}{3}$, $3\frac{2}{3}$, and $4\frac{1}{3}$.
30. Divide $11\frac{1}{4}$ by $1\frac{3}{4}$.
31. Add ·763 of 3 qrs. 11 lbs., to ·683 of 1 cwt. 13 lbs., and give the answer in ounces and the decimal of an ounce.
32. Subtract ·029 of 1 acre 3 roods from ·786 of 3 roods 17 square yards, and express the answer in square feet and the decimal of a square foot.
33. Multiply 13·576 by ·8072, and express the answer as a decimal.
34. Divide 8·62 by 25·86, and express the answer as a decimal.
35. Reduce $\frac{1}{4}$ of ·51 of 15s. 9d. to the decimal of one guinea.
36. Reduce 3 miles 2 furlongs 5 yards and 2 feet to inches.
37. A trench 17 feet long 5 feet wide and 5 feet deep is dug by 17 men in 3 days, working 10 hours a day. How long will it take 26 men to dig a trench 39 feet long 4 feet wide and 5 feet deep working 9 hours a day in soil which requires twice as long to dig as the first?
38. Find the dividend on £2005 at 8s. $4\frac{1}{2}$ d. in the pound.
39. In what time will £925 amount to £1060 5s. $7\frac{1}{2}$ d. at $4\frac{1}{2}$ per cent. per annum simple interest?

ADDITION.

(This Exercise was similar to that on page 44.)

SUBJECTS FOR ENGLISH COMPOSITION.

(Time allowed, 2 hours.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style.

1. The Reign of Queen Victoria; or, 2, "Two of a trade never agree"; or, 3, The Thames.

The Composition should fill not less than two folio pages.

HIGHER ARITHMETIC. (Optional.)

(Including Mensuration, Square and Cube Root.)

(Time allowed, 3 hours.)

1. Simplify—

$$2 + \frac{1}{3 - \frac{1}{5 + \frac{1}{1\frac{1}{2} \div (1\frac{1}{2} \times 14\frac{1}{2})}}$$

and find the value of

$$\begin{aligned} & \frac{\frac{4}{3} \text{ of } 3\frac{1}{2}}{\frac{4}{3} \text{ of } 3\frac{1}{2}} \text{ of } £3 \ 12s. \ 5d. + \frac{5\frac{8}{11}}{\frac{3}{5}} \text{ of } 16s. \ 4d. \\ & + \frac{\frac{3}{7}}{\frac{3}{11}} \text{ of } 3s. \ 8d. \end{aligned}$$

2. Express .93518 of 5 poles $2\frac{1}{2}$ yards as a decimal of .9285174 of 5 furlongs 31 poles $0\frac{1}{2}$ yard correct to 5 places.
3. Find, by duodecimals, the value to the nearest halfpenny of a rectangular block of ore 11 feet $4\frac{1}{2}$ inches long, 3 feet $3\frac{3}{4}$ inches broad, and 2 feet $4\frac{1}{2}$ inches thick, at 8s. 9d. per cubic foot.
4. Divide 114 gallons into 4 measures, so that the first shall be to the second as 5 to 5, the second to the third as 7 to 9, and the third to the fourth as 15 to 17.
5. Reduce 725 and 29 to the septenary scale, and find their quotient in that scale. Extract the square root of 3106571 in the scale of 8.
6. A piece of ground 120 yards long and 95 yards broad is to be covered with turf; the turfs are cut in lengths of $2\frac{3}{4}$ feet. What must be their width if, at the rate of .3875 of £1 per 100, the total cost is £14 14s. 6d.?
7. A box, without a lid, measures externally 4 feet long, 3 feet wide, and 2 feet deep; the material has a uniform width of $\frac{3}{4}$ of an inch. If the wood cost 7s. 9d. the cubic foot, and the making cost $\frac{1}{10}$ of the material, what did the box cost, to the nearest penny?
8. Trains leave London and Edinburgh (400 miles apart) at the same time, and meet after 5 hours. The train which leaves London travels 8 miles an hour faster than that which leaves Edinburgh; at what rate did the former travel, and at what speed must the latter travel after they have met in order that both may reach their destination at the same time?
9. If 6 per cent. be gained by selling 340 lbs. of tea for £59 10s., at what price per pound, to the nearest halfpenny, must it be sold in order to gain 10 per cent.?
10. A can do a piece of work in 10 days, B can do it in 9 days, and C in 12 days. C alone continues to work to the end, A having left off $3\frac{3}{4}$ days and B $2\frac{1}{2}$ days before the work is finished; in what time was the work completed?
11. The hour-hand of a clock is $5\frac{1}{2}$ inches long, and the minute hand 7 inches long; compare the rates at which they travel and the areas of the surface of the dial over which they respectively pass between

- a quarter to 12 o'clock and 9 minutes past 12. The ratio between the circumference and diameter may be taken as $\frac{7}{2}$.
12. A hollow cast-iron garden roller has to be made 2 feet wide and with an outside diameter of 21 inches, the shell of the roller to weigh 2 cwt. What should be the thickness of the iron, in tenths of an inch, if 100 cubic inches weigh 25 lbs. ?

GEOGRAPHY (especially of the British Isles).

(Time allowed, 2½ hours.)

Extra marks will be given for neatness in map-drawing, but only so far as it is accompanied by accuracy.

1. What is the relative size or population of the undermentioned towns and cities; for what are they especially remarkable; and what are their chief articles of manufacture and commerce:—Aberdeen, Amsterdam, Belfast, Bordeaux, Bristol, Danzig, Dublin, Hamburg, and Yarmouth ?
2. Enumerate in definite order the chief rivers and inlets of the sea on either the West, or the East Coast of Scotland; and mention the mountains in which the rivers named have their source, and any lakes which are drained by them.
3. Give a geographical account of Cumberland, Merioneth, Fife, and Antrim, mentioning their natural peculiarities and their commercial products.
4. Draw a map of the southern half of Ireland, with the names and relative positions of the counties, principal towns, chief rivers, and bays.
5. Describe the characters of winds blowing over the British Isles from different quarters, and the differences in the sensations which they produce. Account for the effects which you describe. Is there, upon the whole, any order in the succession of the winds? Give reasons for the observed phenomena.
6. Describe geographically any two groups of islands in the North or the South Pacific, or the Indian Ocean; and state what you know of their commercial and political relation with European Governments.
7. Trace by diagram and description the course of the following rivers:—the Shannon, Missouri-Mississippi, Danube, and Rhine; mentioning the chief towns and fortresses on their banks.
8. What are the natural and the manufactured products of Algeria, Brazil, Cape Colony, Ceylon, Chili, Jamaica, Luzon, Portugal, and Victoria? Mention ports in each of these countries especially concerned in the export trade of the products you mention.
9. On the accompanying outline map of Southern Europe indicate by name the chief ports, capes, and islands, and state any points of historical interest connected with them.

N.B.—In the Examination held in May 1857, the time allowed for the first (Elementary) Arithmetic paper was only 1½ hours.

OUTDOOR OFFICERS OF CUSTOMS.

Examinations for these appointments are held three times yearly, generally about January, May and September. From 150 to 200 appointments are offered each year. The official regulations are as follows:—

The limits of age for these situations are 19 and 25. Candidates must be of the prescribed age on the first day of the month in which the examination is held.

No candidate will be eligible for appointment who is less than 5 ft. 4 in. in height and 34 in. round the chest, or who, if 5 ft. 10 in. and upwards in height, is less than 35 in. round the chest.

These measurements are taken after inspiration, round the chest in its broadest part, and under the clothing.

Any defect of vision will be regarded as a disqualification; and no candidate who has not been satisfactorily vaccinated within the last seven years can be appointed without re-vaccination.

The Examination will be in the following subjects, viz.:—

	Marks.
1. Handwriting	200
2. Orthography	200
3. Arithmetic (to Vulgar and Decimal Fractions)	300
4. English Composition	200

Candidates failing in any of the above-named subjects will not be eligible.

A Fee of 2s. 6d. will be required from each Candidate attending an Examination.

Examinations are held in London, Edinburgh, Dublin, Liverpool, Bristol, Newcastle-on-Tyne, Hull, Leeds, Birmingham, Portsmouth, Plymouth, Swansea, Glasgow, Aberdeen, Cork, Belfast, and Limerick.

Note.—Out-door Officers of Customs receive salary commencing at £55 per annum, and rising by annual increments of £1 10s. to £80 per annum; the salary of the next class commences at £85 a year. They are eligible for promotion to higher situations after a period of approved service, either by a further Competitive Examination or by selection on account of merit and good conduct.

Extract from a Memorandum issued by the Board of Customs.

An Out-door Officer of Customs at any Port of the Kingdom is an Officer who, amongst other matters, is required to perform duty in rowing boats, or on the river or elsewhere in guarding vessels, or to assist his

superior officer in rummaging vessels, when required, in order to discover contraband goods, and to do duty in the dock as a patrol to guard vessels lying therein, or in the bonded warehouses to deliver packages of goods, and to lock and unlock the premises night and morning.

The hours during which the out-door officers in London are employed vary according to the nature of the duties. When employed on the river their hours are very uncertain, being continued frequently night and day, and sometimes for a considerable period. When employed in the bonded warehouses their hours are, from March to November, 8 A.M. to 4 P.M., and during the remaining months 9 A.M. to 4 P.M.

The general duties of an Out-door Officer are as above described, but he will be expected to perform also any work which may be required of him by the exigencies of the service.

The staff of the outdoor department of the Customs consists of the following :—

8	Inspectors and Assistant Inspectors . . .	at £560 to £700	
19	Surveyors, First Class . . .	£490—£15 annually	„ £550
38	„ Second „ . . .	£430—£15	„ £480
63	„ Third „ . . .	£350—£15	„ £420
239	Examining Officers, First Class, £230—£10 annually		„ £300
909	„ „ Second „ . . .	£110—£7 10s.	„ £220
100	Assistant „ . . .	£100—£3	„ £150
573	Outdoor Officers, First Class . . .	£85—£1 10s.	„ £100
924	„ „ Second „ . . .	£55—£1 10s.	„ £80

Outdoor Officers are eligible for promotion to the rank of Examining Officer after three years of approved service, and may be selected either on account of good conduct and efficiency or by Competitive Examination among themselves. The subjects of this examination are—1. Handwriting; 2. Orthography; 3. Arithmetic, including Vulgar and Decimal Fractions; 4. Essay and Précis Writing; and 5. Practical Duties of a Customs Officer. Outdoor Officers have to remain on probation for six months, and a large proportion of them are appointed to the “Dolphin,” at Gravesend, to learn their duties. Outdoor Officers and Examining Officers often earn considerable sums for overtime.

Outdoor Officers also have a number of Outport Clerkships reserved for them to be competed for in an examination, limited to members of the department. The initial salary of these posts is £70, rising by £5 annually for four years, and afterwards by £10 to £200 in the second class. First-class Clerks commence at £220, and rise by £15 to £400. Twenty of these appointments were competed for in April 1886. The subjects set in the examination for Outport Clerkships

are the same as those for Men Clerkships of the Lower Division. The proficiency displayed by successful candidates is below that necessary to secure success in the open competitions for Men Clerkships of the Lower Division.

The following Table shows the marks obtained by the first candidate and the last candidate successful in recent competitions for the situation of Outdoor Officers of Customs.

—	Arith- metic.	Compound Addition.	Ortho- graphy.	Hand- writing.	English Composition.	Total.
Maximum .	250	50	200	200	200	900
January 1886.						
No. 1 . . .	245	49	200	172	114	780
„ 40 . . .	245	48	160	160	111	724
May 1886.						
No. 1 . . .	250	48	200	144	138	780
„ 50 . . .	233	49	195	139	115	731
October 1886.						
No. 1 . . .	235	50	180	174	150	789
„ 100 . . .	118	49	200	139	100	669
January 1887.						
No. 1 . . .	171	46	200	155	144	716
„ 50 . . .	137	50	185	148	113	633

EXAMINATION PAPERS.

COPYING.

(Time allowed, $\frac{1}{2}$ hour.)

On the form supplied, copy, in your best handwriting, as much as you can of the following in the prescribed time.

ODESSA.

Extract from Report by Consul-General Perry on the Trade and Commerce of Odessa for the Year 1883.

The total number of vessels, as far as can be ascertained, that visited the Odessa Consular district during the year 1883 is as follows:—

Port.	British.	Registered Tonnage.	Foreign.	Tonnage.
Odessa	557	595,316	500	409,394
Batoum	19	10,114	159	145,381
Kertch	51	48,251	189	48,398
Sevastopol . . .	66	69,237	80	67,336
Nicolaieff . . .	150	145,568	51	36,741
Berdiansk . . .	17	16,144	165	52,452
Taganrog	438	376,046	517	141,502
Poti	14	10,900	101	40,070

N.B.—This list does not include the coasting trade, which is very extensive.

The year 1883 will be remarkable in the annals of the commerce of Odessa as being the period which it is feared will prove the turning-point of the South Russian wheat trade. As hitherto wheat had held the predominant position in the Odessa exports, it was not anticipated that the demand for this article would greatly diminish. The year 1883, however, showed that transactions in wheat were, relatively speaking, of a limited description, and that the demand for the staple produce of the district was rapidly on the decline. The reason of this decreased demand may be attributed, firstly, to the competition of American and Indian wheat, which is more even and superior in quality, and can evidently be produced cheaper than Russian; secondly, to the defective cultivation of grain in this country; and, thirdly, to the uneven quality of cargoes shipped at Odessa.

Business was lively during the months of January and February: but as shipments were stopped through the port being blocked by ice, the stuff remained on speculators' hands; and in March commenced the downward tendency of prices, which continued to the end of the year. Growers of wheat were loth to realise that their produce held a secondary position in the markets of Europe, and holders were naturally dissatisfied at the depreciation of the article in which they had so heavily invested.

DICTATION.

(Time allowed, $\frac{1}{2}$ hour.)

It was for his true and tried, his simple and unswerving devotion to the national good that the people of England admired and revered the Duke of Wellington. He had not what would be called a loveable temperament, and yet the nation loved him. He was cold and brusque in manner, and seemed in general unemotional. This was not because he lacked affections. On the contrary, his affections and his friendships were warm and enduring; and even in public he had more than once given way to outbursts of emotion such as a stranger would never have expected from one of that cold and rigid demeanour. When Sir Robert Peel died, Wellington spoke of him in the House of Lords with the tears which he did not even try to control running down his cheeks. But in his ordinary manner there was little of the manner that makes a man a popular idol. He was not brilliant or dashing, or emotional or graceful. He was dry, cold, self-contained. Yet the people loved him and trusted in him; loved him perhaps especially because they so trusted in him. No face and figure were better known at one time to the population of London than those of the Duke of Wellington. Of late his form had grown stooped, and he bent over his horse as he rode in the Park or down Whitehall like one who could hardly keep himself in the saddle. Yet he mounted his horse to the last, and, indeed, could keep in the saddle after he had ceased to be able to sit erect in an arm-chair. He was called simply "the Duke." The London working man who looked up as he went to or from his work and caught a sight of the bowed figure on the horse, took off his hat and told some passer-by, "There goes the Duke." His victories belonged to the past. They were but traditions even to middle-aged men in his later years.

ORTHOGRAPHY.

(Time allowed, $\frac{1}{2}$ hour.)

Copy the following passage clearly and legibly, correcting mistakes in spelling, but not otherwise altering either the words or their order.

The population of China Proper has so suffered from insurrections, famines, deaths, and their unusual accompaniment, plague, that it is now generally allowed to comprise no more than three hundred millions. Indeed some officials believe it to be not more populous than India; and, seeing it is approximately of the same size, they assume the population to be two hundred millions, the figures arrived at by the most eminent authorities. Being familiar with both India and China, I am inclined to believe that three hundred millions will be found no extravagant estimate. Any statistics based on the census of 1842, so often quoted, must be erroneous, on account of the devastating rebellions and dreadful famines which have occurred since that epoch. This amount of population appears at first sight a large one, but it is only nine times that of Brittain, while the area which supports it is more than fifteen times that of the British islands. But it is the distribution of this population that is so remarkable. The pressure on the eastern seaboard and on the great water-ways when they open out into valleys and deltas is unparalleled elsewhere. Away from these, the population diminishes with inconceivable rapidity. If

statistix for the hole empire are wanting, it may be phansied that none are prokewrable for the diferent provvinses. It is beleevied that the diferenses range from 40 to 800. The numbers are dense along the see board and the mane water-ways; away from theese they are sparser, & traid does not permeesait. Communications are hoally wanting, and all incentives are taken from the peeple to prodewss beyond there imeediat wunts. The scantiness of poppulation in thees distrix therefore does not nessessarily imply cether povverty of soyle or absense of minneral welth.

ARITHMETIC.

(To Vulgar and Decimal Fractions.)

(Time allowed, $2\frac{1}{2}$ hours.)

You are requested to put the number to each question, and to send up the working as well as the answers.

N.B.—(1.) *You are particularly recommended to answer the questions in the order in which they are set; not omitting any one unless you are unable to do it.*

(2.) *You should occupy the whole time allowed. No extra marks will be given for completing your answers in less than the time allowed.*

1. Add together $3\frac{1}{2}$, $\frac{1}{3}$, $2\frac{3}{4}$, and $\frac{1}{4}$.
2. Subtract $18\frac{1}{3}$ from $22\frac{3}{4}$.
3. Multiply together $2\frac{7}{10}$, $\frac{1}{4}$, $1\frac{1}{8}$, and $\frac{3}{8}$.
4. Divide $18\frac{1}{3}$ by $4\frac{2}{3}$.
5. Add together $23\cdot8459$, $1\cdot765$, $\cdot998763$, and $\cdot0215$.
6. Subtract $87\cdot265439$ from $103\cdot12913$.
7. Multiply $3\cdot092608$ by $\cdot018095$.
8. Divide $328\cdot383$ by 4815 .
9. Reduce $\cdot372$ of 1 qr. 11 lbs. to ounces and the decimal of an ounce.
10. Add together $6\frac{1}{8}$, $\frac{3}{8}$, $7\frac{1}{10}$, and $20\frac{1}{2}$.
11. Subtract $17\frac{1}{3}$ from $25\frac{1}{3}$.
12. Multiply together $8\frac{1}{35}$, $2\frac{7}{11}$, $1\frac{67}{131}$, and $1\frac{1}{813}$.
13. Divide $\frac{520}{133}$ by $\frac{416}{321}$.
14. Add together $\cdot307$ of an acre, $2\cdot046$ of a rood, and $\cdot25$ of 3 perches, and give the answer in square feet and the decimal of a square foot.
15. Subtract $\cdot643$ of 1 lb. 7 ozs. 3 dwts. from $10\cdot045$ of 2 ozs. 11 dwts. 14 grains, and express the answer in grains and the decimal of a grain.
16. Multiply $2\cdot261$ by $\cdot464373$, and express the answer as a decimal.
17. Divide $\cdot253$ by $9\cdot28$, and express the answer in a decimal form.
18. Express 1 cwt. 1 qr. 17 lbs. 8 ozs. as the decimal of 5 cwt.
19. Reduce 2 miles 3 furlongs 9 poles 2 yards to feet.
20. After paying the working expenses of a business at the rate of 16s. $9\frac{1}{2}$ d. in the £ on the gross receipts, a balance of £405 ls. $0\frac{1}{2}$ d. remained. What were the gross receipts?
21. Find (by Practice) the value of 342,654 articles at 7s. $4\frac{1}{2}$ d. per dozen.
22. In how many years will £175 amount to £572 19s. $4\frac{1}{2}$ d. at $3\frac{1}{2}$ per cent. per annum, simple interest?
23. In 4373 pints how many quarters, bushels, pecks, &c.?
24. If a day's work of a man, woman, and boy are respectively as 3, 2, and 1, and if 30 men, 24 women, and 18 boys can complete a certain piece of work in 25 days, how many days will it take 18 men, 30 women, and 42 boys to do twice as much?

25. Find (by Practice) the value of 3 lbs. 7 ozs. 12 dwts., if 9 lbs. cost £10 2s. 6d.
26. Find the compound interest on £4725 in 3 years at $3\frac{1}{2}$ per cent. per annum (neglecting fractions of a penny).

Miscellaneous.

27. Find the value of $1\frac{1}{2} (3\frac{1}{2} - 2\frac{1}{2}) \times (\frac{1\frac{1}{2}}{2} - \frac{2}{3}) \div 13\frac{1}{2} (\frac{4\frac{6}{11}}{6\frac{3}{5}} + \frac{1\frac{3}{5}}{1\frac{1}{2}})$.
28. Distribute £1000 between A, B, C, and D, so that B has $\frac{2}{3}$ as much as A; D $\frac{1}{2}$ as much as C; and C $\frac{1}{3}$ as much as A and B have together.
29. If a coach travels at the rate of $9\frac{1}{2}$ miles per hour and a railway train runs 25 miles while the coach is accomplishing 8 miles, how much time would a traveller save on a journey of 152 miles by adopting the train as his mode of conveyance?
30. A grocer bought 500 lbs. of tea and sold 100 lbs. at 2s. 3d. per lb., making a profit of $12\frac{1}{2}$ per cent.; at what rate per lb. must he sell the remainder so that he may gain 20 per cent. on the whole purchase?

ADDITION.

(Time allowed, $\frac{1}{2}$ hour.)

This Exercise was similar to that on page 44.

SUBJECTS FOR ENGLISH COMPOSITION.

(Time allowed, $1\frac{1}{2}$ hour.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style.

1. Do animals appreciate kindness? Or, 2, A railway journey; or, 3, Punctuality.

*The Composition should fill not less than two folio pages.
Only one subject is to be attempted.*

COPYING.

This Exercise resembled the specimen already given.

DICTIONATION.

(Time allowed, $\frac{1}{2}$ hour.)

The express train takes four and a half hours to make the journey from Alexandria to Cairo. If the change in the open country and the climate is extraordinary, no less so is that between the seaport and the capital. The western quarter of Cairo has been almost entirely reconstructed, and has grown considerably in the direction of the Nile. The other divisions of the city have also been pierced by large open streets. It is to be wished that the desire to convert it into a European town may not end in the disappearance of its Eastern character, which would rob it of a great part of its peculiar charm and attraction. The first thing that a stranger generally does when he has arrived at Cairo is to visit the citadel. This stands on a slight elevation, which is also occupied by some of the Government buildings, and the splendid new mosque holding the tomb of a former ruler. The panorama which one enjoys from the walls of the citadel is indeed a fine one, the most splendid certainly, excepting that of

the Bosphorus, afforded by all the East. At one's feet the vast city spreads out, a sea of houses, over which rises a forest of tapering minarets and noble domes. There are said to be four hundred mosques in Cairo, but no one appears to have counted them exactly. In the background are the yellow mountains of the desert, and over all the clear blue sky. Behind the huge city lies a green plain, watered by the Nile, which has spread out like a great lake, and beyond that the pyramids, with two giants overtopping the rest, monuments of a mysterious past. In the south, in the greater distance, are more pyramids; in the east the tombs of the kalifs, the wide, bare desert, and the hazy mountains bounding the horizon.

ORTHOGRAPHY.

(Time allowed, $\frac{1}{2}$ hour.)

Copy the following passage clearly and legibly, correcting mistakes in spelling, but not otherwise altering either the words or their order.

Thus abandoned by his companion, the emissary remained with his arms folded, and reclined against a solitary beach-tree which overhung the path, making up his mind to encounter a moment which he expected to be critical of his fate. But he was mistaken in supposing that the Prince would either address him, or admit him to expostulation, in such a public place as the Park. He did not remain unnoticed, however, for, when he made a respectful but haughty obeisance, intimating in look and manner that he was possessed of, and undimmed by, the unfavourable opinion which the Prince had so lately expressed, Charles returned his reverence with such a frown as is only given by those whose frown is authority and decision. The retinue passed on, the Duke of Buckingham not even appearing to see his lieutenant; while, the Earl, though no longer incommoded by the sunbeams, kept his eyes which had perhaps been dazzled by their former splendour, bent upon the ground. The Earl had difficulty to restrain an indignation, to which, in the circumstances, it would have been madness to give vent. He started from his reclining posture, and followed the Prince's train so as to keep them distinctly in sight; which was comparatively easy, as they walked slowly. The messenger observed them keep their road towards the Palace, where the Prince turned at the gate and bowed to the noblemen in attendance, in token of dismissing them, and entered, accompanied only by the Duke of Buckingham, and one or two of his equerries. All this was carefully noticed by the Earl, who, as he adjusted his cloak, and drew his sword-belt round so as to bring the hilt closer to his hand, muttered his determination to unravel the mystery, no matter what might issue.

ARITHMETIC.

(Time allowed, $2\frac{1}{2}$ hours.)

N.B.—The arithmetic set in these Examinations has recently been made more difficult, as will be seen by the following paper recently given.

1. Add together $\frac{1}{2}$, $3\frac{1}{2}$, $7\frac{1}{2}$, and $1\frac{1}{2}$.
2. Subtract $13\frac{1}{2}$ from $23\frac{1}{2}$.
3. Multiply together $4\frac{1}{2}$, $1\frac{1}{2}$, $1\frac{1}{2}$, and $1\frac{1}{2}$.

4. Divide $16\frac{1}{3}$ by $\frac{5}{11}$.
5. Add together $11\cdot753$, $\cdot016311$, $\cdot0843$, and $14\cdot3$.
6. Subtract $57\cdot362987$ from $710\cdot27438$.
7. Multiply $1\cdot709367$ by $\cdot704065$.
8. Divide $\cdot12345$ by $\cdot9876$.
9. Express $\frac{1}{7}$ of $\cdot351$ of 2 ozs. 9 grs. troy as the decimal of 1 lb. 7 dwts.
10. Add together $\cdot17$ of a furlong, $4\cdot073$ of a pole, and $\cdot9$ of a foot, and express the result in inches and the decimal of an inch.
11. Subtract $10\cdot167$ of $\cdot6$ cubic yard from $\cdot97$ of 7 cubic yards 2 cubic feet 1 cubic inch, and give the difference in cubic inches.
12. Multiply $\cdot5285714$ by $\cdot567$ and express the answer as a decimal.
13. Divide $16\cdot851$ by $7\cdot353$, and express the answer as a decimal.
14. Reduce $\cdot6$ of $\cdot69$ of 1 day 3 hours to minutes and the decimal of a minute.
15. In 9763571 square inches, how many acres, roods, perches, &c.?
16. A tradesman sold goods for £80, and found he had lost 4 per cent. For what should he have sold them to gain 12 per cent.?
17. Find (by Practice) the value of 444770 articles at $17s. 11\frac{1}{2}d.$ per score.
18. What sum will amount to £257 15s. at $5\frac{1}{2}$ per cent. per annum simple interest in $5\frac{1}{2}$ years?
19. In 847001 ozs., how many tons, cwt., grs., &c.?
20. A can walk 11 miles in 4 hours, and his rate is $\frac{1}{2}$ as fast again as B's. How long would it take B to walk 88 miles?
21. Find (by Practice) how much £61 18s. 9d. will buy if 10s. will buy 2 cwt. 3 grs. 23 lbs.
22. Find the compound interest on £4581 in $2\frac{1}{2}$ years at $4\frac{1}{2}$ per cent. per annum (neglecting the fractions of a penny).
23. Explain and justify each step of the process used in the multiplication of 751 by 302. How would you use your result to obtain approximately (as a decimal) the product of $\cdot751$ by 302 ?
24. Write down all the factors common to 40,887 and 246,015. What is the Least Common Multiple of these common factors? State your result as a general rule, and demonstrate its truth.
25. Express

$$\frac{\frac{5}{2 + \frac{1}{10}} - 2\frac{6}{11}}{\frac{3}{5} + \frac{3}{11 - \frac{1}{5 - \frac{1}{4}}}}$$

as the decimal of 10,000; and $\cdot001$ as the decimal of the given complex fraction. Multiply the two results together.

26. Find the difference between any given pure circulating decimal of five figures and the non-circulating decimal consisting of the same figures in the same order; express this difference as a fraction of the latter decimal, and explain the constancy of your result, whatever be the number chosen.
27. The area of a floor of a room is 651 square feet, of the larger walls together 806 square feet, of the two shorter walls together 546 square feet. Find the length, breadth, and height of the room.
28. A runs a race of 100 yards against B, giving 7 yards start, and losing by 4 yards; B runs against C for the same distance, giving $2\frac{1}{2}$ yards start, and winning by $1\frac{1}{2}$ yard. A then runs against C for 100 yards, giving $6\frac{1}{2}$ yards start. Which ought to win, and by how much?

ENGINEER STUDENTS IN HER MAJESTY'S DOCK YARDS,
AND STUDENTS IN NAVAL CONSTRUCTION.

Open competitions for these appointments are held yearly.
The following are the regulations:—

1. Vacancies for Appointments as Engineer Students in the dockyards will be filled principally by means of competitive examinations open to all sons of British subjects, being of the prescribed age and of good moral character, but their Lordships will reserve to themselves the right to nominate a few candidates at each entry who will be appointed on passing the examination specified in paragraph 11.

The candidates to be nominated will be selected by the Board of Admiralty from sons of officers of the Navy, Army or Royal Marines who have been killed in action or who have been lost at sea on active service, or killed on duty, or who have died of wounds received in action or injuries received on duty within six months from the date of such action or injury, or sons of officers of the Navy or Royal Marines who have performed long and meritorious service. The number to be so nominated will not exceed one-fifth of the total number of Engineer Students to be entered. Except as regards exemption from the Competitive Examination, these candidates will be subject in all respects to these regulations.

2. The number of appointments to be made in each year and the dockyards at which Engineer Students are to be entered will be fixed by their Lordships.*

3. The List of Candidates for these Appointments by open competition will be kept at the office of the Civil Service Commissioners. All applications for the forms to be filled up by persons who wish to compete must be sent to the *Secretary, Civil Service Commission, London, S.W.*, on or after the first of January in each year, and care must be taken that the forms when filled up are returned so as to reach the *Civil Service Commissioners* on or before the 15th March following, as no notice will be taken of forms received after that date. The list of nominated candidates will be kept at the Admiralty.†

4. Candidates must not be less than fourteen nor more than sixteen years of age on the first day of May in the year in which they are examined.

* The number of vacancies announced for open competition in 1886 was 28.

† Applications for nominations must be made before the 1st February in each year, and should be addressed to the Secretary of the Admiralty if the candidate is the son of an officer of the Navy or Marines; to the Military Secretary, Horse Guards, if the candidate is the son of an officer of the Army; and to the Military Secretary, India Office, if the candidate is the son of an officer of the Indian Army.

5. Evidence of age and character will not be required before the examination, but candidates successful in it will not be eligible for appointment unless they satisfy the Civil Service Commissioners on these points.

6. The medical examination of the successful candidates will be held under the authority of their Lordships, as soon as possible after the result of the educational examination is made known. No candidate will be entered as an Engineer Student unless he is pronounced to be physically fit. Candidates in or near London will be medically examined by the Medical Director-General of the Navy at the Admiralty. Those residing near one of Her Majesty's dockyards, or one of the First Reserve ships, or Drill Ships of the Royal Naval Reserve, or the Flagship at Queenstown, will be examined by the Medical Officers attached thereto. The medical examination will be conducted in all respects in strict accordance with the instructions for the examination of persons for admission into the Naval Service. All candidates at the time of their medical examination must produce certificates to the satisfaction of the examining officers that they have been re-vaccinated, or they must be re-vaccinated before they can be considered eligible for entry into the dockyard.

7. The Educational Examination will be held by the Civil Service Commissioners in London, Liverpool, Portsmouth, Devonport, Bristol, Leeds, Newcastle-on-Tyne, Edinburgh, Glasgow, Aberdeen, Dublin, Belfast, and Cork, and will take place in the month of April of each year. The exact date may be ascertained by application to the Secretary, Civil Service Commission, on or after the first of January in each year.

8. The following will be the subjects of the Competitive Examination and the maximum number of marks for each subject:—

*Arithmetic	300
<i>English—</i>	
*Handwriting	40
*Accuracy and Intelligence in Writing from Dictation	60
*Composition	100
Grammar	150
	— 350
<i>French or German or Italian—</i>	
Translation into English	150
<i>Latin—</i>	
Translation into English	150
Geography	100
Algebra (up to and including quadratic equations)	300
Euclid's Elements (Books I. to IV. and Book VI. and the definitions of Book V.)	300
Mechanical Drawing (elementary).	100
(The construction of plane scales and the use of simple mathematical instruments as shown by the neat drawing of plane geometrical figures to scale.)	
Total	1,750

All Candidates will be tested as to their ability to read aloud with clearness, distinctness, and accuracy, and without hesitation. Stammering, or any imperfection of utterance, will be regarded as a disqualification.

9. A fee of one shilling will be required from every candidate attending an examination.

10. Candidates in the Competitive Examination who fail to pass in the first four subjects (those marked with an asterisk), or in reading aloud, will be disqualified, and their other papers will not be examined. Successful Candidates will be entered as Engineer Students in one of the dockyards, according to the number of appointments which it may be decided to make that year; they will be taken according to their position on the examination list. Candidates who obtain less than 700 marks in the aggregate will not be placed upon the list.

11. The Candidates who are nominated by their Lordships will be required to pass the same test examination in the first four subjects as the Candidates who enter for the Competitive Examination. They will also be examined in the other subjects to ascertain the extent of their knowledge and to determine their order of merit, and no nominated candidate will be appointed as an Engineer Student who obtains less than 700 marks in the aggregate.

12. Candidates will be informed by letter from the Civil Service Commission of the result of their examination as soon as it has been ascertained.

13. The Candidates who obtain appointments will be entered as Engineer Students not later than the 1st July in each year, and must join with their Parents or Guardians in a Bond for £300 to enter, if required, into Her Majesty's Naval Service as Assistant Engineers, if at the expiration of their training they should obtain certificates of good conduct and efficiency for entry in that capacity. These bonds and the indentures of apprenticeship must be completed in all respects before the Students join the dockyard.

14. The Parent or Guardian of each Engineer Student entered in future will be required to make four annual payments during the first four years of the Student's training, viz.:—£30 each year for the first two years, and £20 each year for the two subsequent years. It will, however, be at the discretion of my Lords to reduce these annual payments in the case of sons of officers killed or drowned, or who have otherwise lost their lives on service. Should an Engineer Student leave or be dismissed from the Service, the payments which have been made in his behalf will be forfeited.

15. The first payment is to be made before the Student is entered in the yard, and the three next payments are to be made on or before the 30th day of June in each of the three succeeding years. The payments are to be made to the cashier of the yard to which the Student is appointed. In case of failure of payment the Student will be discharged.

16. The Parents or Guardians of all Engineer Students will also be required to provide the uniform or other clothing, washing, and necessities of each Student. Board and lodging and medical attendance will be provided by the Admiralty. The Students will be required to reside in one of the dockyards or in a vessel adjacent thereto.

17. The weekly pay of Engineer Students during their training will be as follows, provided they are well reported on by the officers:—

First Year	One shilling	} a week.
Second „	Two shillings	
Third „	Three „	
Fourth „	Five „	
Fifth „	Eight „	
Sixth „	Ten „	

18. Five weeks' leave (30 working days) on full pay will be granted each year to all Engineer Students whose conduct and progress have been satisfactory. This leave is to be taken during the School Vacations at Midsummer and Christmas.

19. The students are not to be checked pay while on leave, nor when hurt. When sick they will be checked off their pay after they have been absent for six months in the aggregate during any period of twelve months. At the expiration of this time a special report is to be made to their Lordships in each case. Students pronounced at the end of twelve months' absence on account of sickness or hurt to be permanently unfit, or unlikely to be capable of entering Her Majesty's Navy as Engineer officers, will be discharged.

20. Engineer Students will be under the supervision of the Superintendent of the Dockyard and a Staff of Officers, and subject to such rules and regulations as their Lordships may deem necessary.

21. Special regulations will be made for Engineer Students in the dockyards, so as to make a distinction between them and the workmen.

22. Engineer Students in their first year of training, who may be desirous of leaving the Service, and whose reasons are considered satisfactory, may be allowed, under their Lordships' authority, to have their Indentures and Bonds cancelled, but this concession is not to be claimed as a right.

23. Engineer Students will remain for six years at one of the dockyards for practical training in the workshops, and to receive instructions in Iron Shipbuilding. While the Engineer Students are being instructed in Iron Shipbuilding they are to be under the direction of the Chief Constructor. They will attend the Dockyard Schools for such periods, and to pursue such studies as may from time to time be determined on; they will also pass a portion of their time in the Drawing Office. Means will be afforded them of acquiring the groundwork of the knowledge required by a Naval Engineer respecting the working of Marine Engines and Boilers, including those repairs which can be carried out afloat, the practical use of the various Instruments used in the Engine-room, including the Indicator, and of becoming generally acquainted with the duties of a Naval Engineer.

24. Engineer Students will be examined once a year under the direction of the President of the Royal Naval College. They will be examined by the Engineer Officers of the Admiralty at the end of the fourth, fifth, and sixth years of their service as to their practical acquirements and knowledge of steam machinery. Prizes will be given annually at each dockyard to the Engineer Students most highly reported on as regards their skill as Workmen. Practical Engineering will be considered an essential subject at Examinations, and in the lists showing the results of Examinations the numbers obtained in Practical subjects will be shown distinct from those obtained in Educational subjects. No Engineer Student will be granted a qualifying Certificate for entry at the Royal Naval College unless he obtains at least 50 per cent. of the total number of marks for Practical Engineering on his final Examination, and also displays a competent knowledge of the subjects taught in the Dockyard Schools.

25. The Examination of the Sixth Year Students is to be held in time for the necessary Certificate to be forwarded to the Admiralty on or before the 23rd June in each year, and it will include tests of their skill as workmen. Those found qualified will, on the completion of their term of service at the dockyards, be entered as Acting Assistant Engineers on probation and proceed to the Royal Naval College at Green-

wich on the 1st October succeeding the Examination, where they will pass through a course of higher instruction.

26. Those Engineer Students who fail to pass the Examination at the end of their six years' service will be allowed to remain one year longer at the dockyards, and will then be re-examined, when, if they are unable to pass, they will cease to be eligible for the rank of Naval Engineer. The pay of a Student during such year of probation will be the same as during the sixth year.

27. Engineer Students will not be entered as Acting Assistant Engineers until they have been pronounced fit for Her Majesty's Naval Service by the Medical Officers, and have learned to swim.

28. The pay of Acting Assistant Engineers while at the Reserves will be 6s. a day, and they will receive 1s. 6d. a day in lieu of provisions, &c. While at Greenwich they will be provided with quarters, and during their first session they will be paid 6s. a day and 1s. 6d. a day towards the mess expenses. Those selected for further study will receive their full pay and 1s. 6d. a day towards the mess.

29. The period of study at Greenwich will be one session extending from the 1st October to the 30th June following. All will be examined under the direction of the President of the Royal Naval College on the completion of their course at Greenwich, and will receive Certificates according to their merit in three classes. Those who obtain First Class Certificates will receive Commissions dated the same day as their Acting Appointments. Those who obtain Second Class Certificates will receive Commissions dated six months after the date of their Acting Appointments; and those who obtain Third Class Certificates will receive Commissions dated the day after their discharge from the Royal Naval College. The additional time given for First Class Certificates and Second Class Certificates will reckon in all respects as time served as Assistant Engineer. In the event of any Acting Assistant Engineer failing to pass satisfactorily at the final Examination at Greenwich, his Commission will be withheld for such a period as may be determined on by their Lordships.

30. Two Assistant Engineers will be selected annually from those who take the highest place at the Examination on the completion of their course at Greenwich, to pass through a further course of scientific instruction if they desire it. These two will be allowed to remain two more sessions at Greenwich, on the completion of which they will be sent to sea as Assistant Engineers, and, after one year's service at sea, they will be considered eligible to fill vacancies occurring in the dockyards and at the Admiralty.

31. Those passing the second and third sessions at Greenwich will be attached during the vacations between the 30th June and 1st October to the dockyards or Steam Reserves, where they will be employed sketching machinery, attending trials of new and repaired engines, and gaining such professional information as will be most useful to them for the purposes of engine design.

32. No Assistant Engineer who has passed Three Sessions at Greenwich will be allowed to leave Her Majesty's Service within seven years of the completion of his term at Greenwich, unless he shall pay the sum of £500 to defray the charges of his education. Such resignation to be subject in each case to their Lordships' approval.

ROYAL CORPS OF NAVAL CONSTRUCTORS.

A Corps of Shipbuilding Officers having been established by Her Majesty's Order in Council of the 23rd August 1883, the following instructions are issued for the guidance of those concerned.

1. The number, the designation, and the salaries of the members of the Corps will be as follows:—

ADMIRALTY.

- Director of Naval Construction, £1500 a year, rising to £1800 after five years' service.
- Surveyor of Dockyards and Chief Constructor, £600 a year, rising to £850 by £25 a year; Duty pay of £100 a year for acting for Director of Naval Construction: and a London allowance of £150 a year.
- 2 Chief Constructors, £600 a year, rising to £850 by £25 a year; and a London allowance of £150 a year.
- 3 Constructors, £400 a year, rising to £550 by £20 a year; and a London allowance of £120 a year.
- 5 Assistant Constructors, First Class, £300 a year, rising to £450 by £15 a year. Duty pay of £50 a year to Assistant Constructor in charge of foreign records. Duty pay of £50 a year to Assistant Constructor acting for Chief Constructor.
- 1 Assistant Constructor, First Class (for scientific experiments), £250 a year, rising to £300 by £15 a year.
- 6 Assistant Constructors, Second Class, £160 a year, rising to £240 by £10 a year, and a London allowance of £50 a year.

DOCKYARDS.

- 3 Chief Constructors, Chatham, Portsmouth, and Devonport Dockyards, £700 a year, rising to £850 by £25 a year, and a house.
- 3 Chief Constructors, Sheerness, Pembroke, and Malta Dockyards, £600 a year, rising to £700 by £25 a year, and a house.
- 8 Constructors, £400 a year, rising to £550 by £20 a year, and a house.
- 1 Constructor, Hong Kong, £400 a year, rising to £550 by £20 a year; a house or an allowance of £150 a year in lieu thereof, and a Colonial allowance of £100 a year.
- 1 Constructor, Bermuda, £400 a year, rising to £550 by £20 a year, a house, and a Colonial allowance of £100 a year.
- 10 Assistant Constructors, First Class, £250 a year, rising to £300 by £15 a year.
- 18 Assistant Constructors, Second Class, £160 a year, rising to £240 by £10 a year.
- 9 Assistant Constructors, Third Class, £110 a year, rising to £150 by £10 a year.

DUTIES.

2. The Corps of Naval Constructors will be under the Controller of the Navy.

3. The Director of Naval Construction will be the Head of the Corps, and will perform such duties as may be assigned to him from time to time by the Board of Admiralty.

4. *Chief Constructors and Constructors* will be entrusted with the designing, building, fitting, and repairing ships for Her Majesty's Service.

5. *Assistant Constructors of the First Class* will be employed in the office of the Controller of the Navy in preparing designs and specifications of ships to be built or refitted, or on such other duties as may be assigned to them by the Controller. In the Dockyards they will take charge of the drawing offices, conduct special experimental investigations, act as Foremen of the Yard, when selected for that office, and be employed as Overseers of works in progress at contractors' premises.

6. *Assistant Constructors of the Second Class* will be employed in the office of the Controller of the Navy to assist in the preparation of drawings and specifications; as Overseers or Assistant Overseers of works in progress at contractors' premises; as professional secretaries to the Chief Constructors at the Home Dockyards; in the supervision of the record of weights of materials worked into ships in process of construction; in the preparation of returns of weights carried, and other estimates of the draught and trim of ships; and in giving such assistance to the superior officers of the Corps as may be directed by the Controller of the Navy, or by the Superintendents of the Dockyards to which they may be attached.

7. *Assistant Constructors of the Third Class* will be employed in the Dockyards in the supervision of the weights of materials worked into ships in process of construction; in the preparation of returns of weights carried, and other estimates of the draught and trim of ships; and in giving such assistance to the superior officers of the Corps as may be directed by the Controller of the Navy, or by the Superintendents of the Dockyards to which they may be attached.

ENTRY AND TRAINING.

8. *Studentships*.—Studentships in Naval Construction, not exceeding three in number in any one year,* will be offered for public competition at the annual competitive examination for Engineer studentships in Her Majesty's Dockyards, the limits of age, subjects of examination, and other conditions being those prescribed from time to time for such studentships. The studentships in Naval Construction will be offered to the successful candidates at the examination in order of merit.

9. The candidates who receive appointments as students in Naval Construction will reside for a term of six years at Portsmouth in the Training School for Engineer students, and be subject to the same conditions as to fees, pay, uniform, and other details as may be prescribed from time to time for Engineer Students. Their course of instruction will be laid down from time to time.

* Three vacancies were offered to the successful Candidates at the annual competition of 1886.

10. With a view to obtain candidates from the existing source of supply concurrently with those entered by public competition, the following regulations will be adopted for the training of shipwright apprentices in the Dockyards:—

(a) The limits of age for the entry of apprentices * will be from 14 to 16 years.

(b) A limited number of apprentices, who pass the best examination † at the end of their third year, and are recommended for conduct, will be permitted to attend school for another year.

A like rule will apply to the examination of apprentices at the end of the fourth year.

(c) After the examination at the end of the fifth year, apprentices who pass a highly creditable examination and are recommended for conduct will be eligible for transfer to the Training School. The number to be admitted to the School will be fixed annually by the Board of Admiralty in accordance with the requirements of the Service.

The selected apprentices will remain in the School for one year.

(d) To meet the expenses attendant upon admission to the Training School, the selected apprentices will receive studentships of the value of £25 each, tenable for one year.

11. Students in Naval Construction, on passing satisfactorily from the Training School, will be admitted to the Royal Naval College at Greenwich, on probation, for one year, at the expiration of which period a report of their progress will be made to the Admiralty. Should the report be unsatisfactory, the students will be discharged from the Service or sent back to the Dockyards as apprentices, as the case may be.

12. The Engineer student who stands first in the final examination, held annually in the Training Schools for Engineer students, will, if recommended by the Director of Studies, be allowed the option of admission to the Royal Naval College as a student in Naval Construction.

13. While at the College, students in Naval Construction will be required to wear a suitable uniform.

14. *Bonds.*—On entry, a student will be required to join with his parents or guardians in a bond for £300 to enter into the Service as Assistant Constructor, if his services are required.

15. An Assistant Constructor will not be permitted to leave the Service until seven years have expired after the completion of his term at the Royal Naval College, unless he shall pay the sum of £300 if entered as a student from the apprentice class, or the sum of £500 if entered a student by competition.

This payment is for the purpose of defraying the charges incurred by the public for his education.

16. *Liability to Foreign and Sea Service.*—Every student entering the Royal Corps of Naval Constructors will be liable to serve at any foreign Naval Establishment the Admiralty may direct; he will also have to proceed to sea, if so required.

* Ship fitter apprentices will be eligible to compete on equal terms with shipwright apprentices.

† The subjects of examination will be those common to the apprentices and the students in the Training School.

PROMOTION.

17. Such students only as obtain first and second class professional certificates on their final examination at the Royal Naval College will be admitted to the Corps; the students who obtain first class certificates will be appointed Second Class Assistant Constructors, and the students who obtain second class certificates will be appointed Third Class Assistant Constructors. Students who obtain third class certificates will not be admitted to the Corps, but will receive, as heretofore, appointments as draughtsmen in the Dockyards.

18. *Foremen of the Yard eligible for Corps.*—Any Foreman of the Yard whose age does not exceed 50 years, and who is specially recommended by his superior officers, may be admitted to the Corps of Naval Constructors as a Second Class Assistant Constructor, provided he passes a qualifying examination in the elements of ship design and the calculations connected therewith.

19. Foremen so transferred will have all the superior appointments in the Corps open to them.

On admission into the Corps, Foremen will retain their existing scale of salary so long as they remain in the grade of Assistant Constructor of the Second Class.

20. *Candidates from outside the Service.*—A limited number of candidates under 25 years of age, who can furnish evidence of character, and of thorough training in practical shipbuilding, will be permitted to attend the annual examination held at the Royal Naval College at the conclusion of each session. Should these candidates succeed in obtaining first or second class professional certificates, they will be offered appointments as Assistant Constructors in the class to which their certificates would entitle them.

21. Assistant Constructors of the Third Class will serve for five years in that grade before being eligible for promotion, and such promotion will be by seniority as vacancies occur, provided that the officer is favourably reported for character, ability, and industry.

22. Assistant Constructors, on promotion to the Second Class, will generally be employed for a time in the Department of the Controller of the Navy.

23. Promotion from the Second to the First Class will be by selection. Assistant Constructors who obtain first class certificates will be eligible for promotion after five years' service from the date of leaving the Royal Naval College, and those who obtain second class certificates will be eligible after seven years of such service.

24. Vacancies in the grade of Constructor will be filled by selection from the Assistant Constructors of the First Class.

25. Vacancies in the grade of Chief Constructor will be filled by selection from the Constructors.

26. In making selections for advancement in all grades of the Corps, the Admiralty will be guided solely by consideration of special fitness for the vacant appointments. To mark this unmistakably, the names of the gentlemen belonging to the Corps will be arranged in alphabetical order in their respective classes.

27. Annual reports on the Assistant Constructors will be made by the Chief Constructors of the Yards and forwarded by the Superintendents to the Admiralty. These reports should mention the large or principal works upon which each Assistant has been employed during the year.

RETIREMENT.

28. The present regulations as to compulsory retirement at the age of 60 years will remain in force.

The following Table shows the marks obtained by the first candidate and the last candidate successful in a recent examination :—

	Arithmetic.	Compound Addition.	Handwriting.	Writing from Dictation.	English Composition.	English Grammar.	French.	Latin.	Geography.	Algebra.	Euclid.	Mechanical Drawing.	Total.
Maximum	250	50	40	60	100	150	150	150	100	300	300	100	1750
No. 1 .	243	48	33	50	58	111	130	36	71	295	236	87	1398
„ 46 .	187	48	28	55	75	89	123	121	28	99	98	50	1001

Many of the candidates successful in the examination were declared ineligible on other grounds. There were 85 qualified competitors ; 97 others failed in one or more of the subjects.

EXAMINATION PAPERS.

TIME TABLE.

Days and Hours of Examination.		Subjects of Examination.
Tuesday, 13th April.	10 a.m. to 12.30 p.m.	Arithmetic.
	12.35 p.m. to 1.5 p.m.	Dictation (1).
	2.30 p.m. to 3.45 p.m.	Grammar.
	3.50 p.m. to 4 p.m.	Copying.
	4.5 p.m. to 4.35 p.m.	Addition.
	4.40 p.m. to 5.10 p.m.	Dictation (2).
Wednesday, 14th April.	10 a.m. to 12 noon.	Algebra.
	12.10 p.m. to 1.25 p.m.	English Composition.
	3 p.m. to 4.15 p.m.	Geography.
Thursday, 15th April.	4.20 p.m. to 5.50 p.m.	Modern Language (Translation from).
	10 a.m. to 12 noon.	Euclid. (Reading aloud during Euclid.)
	12.10 p.m. to 1.40 p.m.	Mechanical Drawing.
	3 p.m. to 5 p.m.	Latin Translation.

ARITHMETIC.

1. Write out in words the number 72004106.
2. Write down in figures one hundred and seven million two thousand and twenty-three.
3. Write out in words the number 609401606.
4. Multiply £4,305 15s. 7½d. by 28.
5. Divide £21,369 2s. 9½d. by 45.
6. From £297,087 13s. 8½d. take £198 17s. 9d.
7. Multiply 5,463,807 by 60,307.
8. Multiply £593 11s. 10½d. by 66.
9. Divide 5,698,350 by 719.
10. Divide £32,341,326 4s. 8½d. by 291.
11. Reduce 3 acres 3 poles 1 yard 1 foot to square feet.
12. If 2 bushels 1 peck of malt cost 13s. 1½d., how much can be bought for £27 5s. 5d.?
13. Find (by Practice) the cost of 3 gal. 2 qt. 1 pt. at 18s. 6d. per gallon.
14. Find the simple interest on £560 for 2½ years at 4½ per cent. per annum.

N.B.—The first fourteen questions should be answered before the following are attempted.

15. If £3 17s. be paid for the carriage of 4 cwt. 3 qr. for 160 miles, how much must be paid for the carriage of 11 cwt. 3 qr. 14 lb. for 100 miles?
16. What sum will produce £455 per annum at 3½ per simple interest?
17. Add together $\frac{1}{11}$, 27, $\frac{1}{3}$, and $6\frac{1}{5}$.
18. Subtract $10\frac{1}{8}$ from $20\frac{1}{8}$.
19. Multiply together $7\frac{1}{3}$, $\frac{4}{33}$, $1\frac{1}{13}$, and $\frac{35}{11}$.
20. Divide $\frac{44\frac{1}{11}}{5\frac{1}{2}}$ by $4\frac{1}{18}$.
21. Add together $\cdot 840107$, $28\cdot 06$, $441\cdot 5$, $\cdot 004747$, and 1769 .
22. Subtract $635\cdot 646$ from $1635\cdot 620671$.
23. Multiply $3\cdot 478534$ by $\cdot 04705$.
24. Divide $\cdot 895168$ by $98\cdot 64$.
25. Divide $9279\cdot 6$ by $\cdot 760$, and the quotient by $\cdot 0037$.
26. Reduce $\frac{1}{4}$ of 3 miles 2 furlongs to the decimal of 5 miles.
27. Find, by duodecimals, the continued product of 23 ft. 5 ins. 6 pts., 10 ft. 6 ins., and 5 ft. 7 ins. What will the result become when expressed in cubic yards, cubic feet, cubic inches?
28. Two incomes, one of which is half as large again as the other, pay together an income-tax which amounts to £70 0s. 10d.; if the income-tax is 8d. in the pound, what is the amount of each income?
29. Find the square root of $235\cdot 131556$ and the cube root of $23014\cdot 89$.
30. A can row from B to C, a distance of 24 miles, and back in still water in 12 hours, how long will it take him to do the same if a stream flows from B to C at the rate of 2 miles an hour?
31. If 7 per cent. is lost by selling goods for £145 6s. 3d., what would be gained per cent. by selling them for £168 15s.?

ADDITION.

N.B.—*You had better occupy the whole time allowed.
No additional marks will be given for rapidity.*

£	s.	d.	£	s.	d.	£	s.	d.
4321	18	9	239	2	5	8279	12	9
485	2	2	6127	9	13	4123	17	6
8139	7	4	6408	13	10	211	6	8
6409	12	8	1067	13	8	631	7	7
612	3	2	8385	13	6	7245	6	2
4561	10	8	9635	2	10	207	4	6
752	15	3	492	13	7	9065	13	8
2935	8	1	360	5	5	1130	1	4
6218	12	8	9532	8	7	3276	5	9
109	19	10	56	4	10	691	13	9
46	3	6	2307	4	2	9603	2	5
4201	6	8	6904	7	3	362	3	4
94	3	4	563	4	1	1287	14	7
2015	1	2	163	9	11	5976	2	5
8019	3	8	1528	3	6	287	6	8
3805	16	4	232	1	11	9416	9	8
210	14	8	4287	9	11	1397	5	1

[* * The paper contained nine other columns similar to the above.]

COPYING.

On the paper supplied, copy, in your best handwriting, as much as you can of the following in the prescribed time.

The Exercise consisted of 13 lines of print.

DICTATION.

(This Exercise was similar to that given for Boy Clerkships, see page 109.)

ENGLISH COMPOSITION.

Choose one of the three following subjects:—

(1) Contrast January and April; or (2), the experiences of a passenger snowed-up in a railway train; or (3), good and bad manners.

You are expected to write not less than a page.

N.B.—*In this Exercise special attention should be paid to orthography, handwriting, punctuation, grammar, and correctness of expression.*

ENGLISH GRAMMAR.

1. Break up the following passage into its component sentences, classifying them as main and subordinate, and point out the subject, predicate and other parts of each sentence :—

Breathes *there* the man, with soul *so* dead,
 Who never to himself *hath* said,
 This is *my own*, my native land !
 Whose heart hath ne'er within him burned,
 As *home* his footsteps he hath turned,
 From *wandering* on a foreign strand ?
 If *such* there *breathe*, go, mark him well ;
 For him no minstrel raptures swell.

2. Parse the words in the above passage which are printed in italics.
 3. Explain the difference between a preposition and a conjunction. Show by examples that the words *since*, *but*, *for*, and *except*, may be sometimes prepositions and sometimes conjunctions.
 4. Give the force of the suffixes in the words *needful*, *eastern*, *justice*, *soluble*, *monarchy* ; and of the prefixes in the words *immortal*, *mislead*, *incur*, *transitive*, *sympathy*. From what language is each word derived ?
 5. Explain the use of the following words as applied to verbs :—Intransitive, weak, defective, auxiliary, passive. Give five sentences, one to illustrate the use of each of these classes of verbs.
 6. What is meant by *inflection* ? Which parts of speech in the English language admit of being inflected ? State the purpose served by the inflection in each case.

FRENCH.

Translate into English :

Le célèbre Paul, fils d'une lavandière, commença par être mousse, et finit par être vice-amiral. La fortune éleva son âme, sans lui donner de la vanité. Un jour qu'il passait sur le quai du port, à Marseille, accompagné de plusieurs officiers, et des principaux gentilshommes de cette ville, il aperçut dans la foule du peuple qui s'assemblait pour le voir, un matelot, son ancien camarade, qui n'osait se montrer. Paul s'approche. " Mon ami, pourquoi ne fuyez-vous ? Croyez-vous que la prospérité m'ait fait oublier mes amis ? " Ensuite se tournant vers ceux qui le suivaient : " Messieurs, voilà un camarade de mon enfance ; nous avons été mousques sur le même vaisseau ; le sort m'a été favorable et il lui a été contraire ; mais je ne l'en estime pas moins ; souffrez que je m'entretienne un moment avec lui. " Aussitôt le vice-amiral prend son ancien camarade par la main, s'informe de l'état de ses affaires, et lui procure un emploi qui le met en état de subsister avec sa famille. Le brave ne fait ses preuves qu'au jour de bataille le vrai héros fait les siennes tous les jours et en toute rencontre.

(A second piece was given.)

GERMAN.

Translate into English :

Als Joseph II. 1771 mit einem kleinen Gefolge unerkannt das Königreich Böhmen durchreiste, traf er vor der Stadt Budweis einen Bauer an, welcher in Ketten arbeitete. Auf die Frage nach dem Grund dieser Strafe erwiderte derselbe, er habe einen Hasen, welcher ihm lange Zeit auf seinem Felde großen Schaden gethan, todt geschlagen; der Amtmann habe ihn deswegen verurtheilt, sechs Wochen lang in Ketten arbeiten zu müssen. Der Kaiser befahl dem Bauern, ihm in die Stadt zu folgen. Als sie daselbst im Gasthof angekommen waren, ließ Joseph den Amtmann zu sich rufen. Der Amtmann ließ dem fremden Herrn die stolze Antwort geben: „es habe einer so weit zu dem andern, als der andere,“ und kam nicht. Nun ging der Kaiser selbst mit dem Bauer zu dem Amtmann und ermahnte ihn, sein Amt nicht zur Unterdrückung seiner Untergebenen zu missbrauchen und den Bauern loszulassen. Allein trotzig erwiderte der Beamte, er könne thun, was ihm beliebe, und habe sich von den Offizieren nichts befehlen zu lassen. Nun gab sich Joseph zu erkennen, ließ sogleich dem Bauern die Fesseln abnehmen, sie rüßte dem Beamten anlegen und ihn gefesselt nach Prag bringen.

§ auf.

(Another piece of about equal length was also set for translation.)

LATIN.

Translate into English :

I.

Hasdrubale interfecto exercitus summam imperii ad Hannibalem detulit. Sic Hannibal, minor quinque et viginti annis natus imperator factus, proximo triennio omnes gentes Hispaniæ bello subegit; Saguntum, foederatam civitatem, vi expugnavit; tres exercitus maximos comparavit: ex his unum in Africam misit, alterum cum Hasdrubale fratre in Hispania reliquit, tertium in Italiam secum duxit: saltum Pyrenæum transiit. Quacumque iter fecit, cum omnibus incolis conflixit: neminem nisi victum dimisit. Ad Alpes posteaquam venit, quæ Italiam ab Gallia sejungunt, quas nemo umquam cum exercitu ante eum præter Herculeum Graium transierat: (quo facto is hodie saltus Graius appellatur), Alpico conantes prohibere transitu concidit: loca patefecit, itinera muniit, effecit ut ea elephantus ornatus ire posset, qua antea unus homo inermis vix poterat repere. Hac copias traduxit in Italiamque pervenit.

CORN. NEPOS.

Vocabulary:—*Deferre ad*, to confer upon.

Concidere, to cut to pieces.

Repere, to crawl.

II.

LAODAMIA TO HER HUSBAND PROTESILAUS AT THE SIEGE OF TROY.

Hectora nescio quem timeo: Paris Hectora dixit

Ferrea sanguinea bella movere manu.

Hectora, quisquis is est, si sum tibi cara, caveto:

Signatum memori pectore nomen habe.

Hunc ubi vitaris, alios vitare memento,

Et multos illio Hectoras esse puta:

Et facito ut dicas, quotiens pugnare parabis,
 "Parcere me jussit Laodamia sibi."
 Si cadere Argolico fas est sub milite Trojam,
 Te quoque non ullum vulnus habente cadat.
 Pugnet et adversos tendat Menelaus in hostes:
 Hostibus e mediis nupta petenda viro est.

OVID.

Vocabulary:—*Facere ut*, to take care to do anything.

GEOGRAPHY.

(Extra marks will be given for neatly drawn maps, but only so far as they are accurate.)

1. What causes the Tides, and why do they differ in height at various places? Where is the highest tide usually found, and what seas in Europe are practically tideless? Explain the reason for this latter phenomenon.
2. Show, by the aid of the accompanying outline map, the mountain systems, and consequent drainage, of England and Wales. Mark the counties which constitute Wales, and give the positions of the capital town of each, together with those of Cheltenham, Birmingham, Northampton, Liverpool, and Leeds.
3. Name in order, beginning on the North American side, the countries that border on the Atlantic Ocean, giving their capitals, one principal river, and the chief seaport in each. Describe briefly the permanent currents of this ocean.
4. What British Possessions are shown in the map of Asia? Name their chief towns, and explain why they are politically or commercially valuable.
5. Define the meaning of the "Equator," and name the countries, islands, and seas it traverses. How far on either side of it does that portion of the Earth's surface called "the Tropics" extend, and what fixes their boundary?

ALGEBRA (up to and including Quadratic Equations).

1. Find the value of

$$\frac{5a^2 + b^2 - 2(bc - ac)}{8(b - 2c^3) - a} (a - b + 2c)$$

when $a = -3$, $b = 1$, $c = -1$.

2. If $y - z = ax$, $z - x = by$, $x - y = cz$, prove that $abc + a + b + c = 0$.
3. Divide $x^8 + x^4 + 1$ by $x^4 + x^2 + 1$, and show that $(mx + ny + pz)^3 + (px - ny + mz)^3$ is divisible by $(m + p)(x + z)$.
4. Simplify the expressions

$$(1) \frac{x}{1-x} + \frac{2x^2}{(1-x)^2} + \frac{x^3}{(1-x)^3}$$

$$(2) \frac{3b}{3ax - 5by} - \frac{ax}{b - y} - \frac{1}{3ax - 2by}$$

5. Find the conditions necessary that $x^3 - 3ax^2 + 3a^2x - a^3$ may be divisible without a remainder by $x^2 - px + q$.
6. Resolve the following expressions into factors, and write down their Highest Common Divisor and their Least Common Multiple.
 $12x^3 + 16x^2 - 16x$, $12x^3 + 6x^2 - 36x$, $12x^3 + 21x^2 + 4x + 8$.
7. Extract the square root of

$$25 - 24\frac{a}{x} + 4\frac{a^2}{x^2} - 12\frac{x}{a} + 16\frac{a^2}{x^2}.$$
8. Solve the equations
 - (1) $4\left(\frac{2x+3}{x+5}\right) + 13 = 7\left(\frac{3x-5}{x-3}\right)$
 - (2) $\frac{x+a}{2a+b} + \frac{x+b}{a+2b} = \frac{2x}{a+b}$
 - (3) $\left. \begin{array}{l} x^2 - xy = 6 \\ x^2 + y^2 = 61 \end{array} \right\}$.
9. A grocer buys a quantity of tea at 2s. 6d. a lb., and an equal quantity of another kind at 2s. a lb. 12 lbs. of the former kind having been damaged, he mixes together what remains of the teas, and by retailing the mixture at 2s. 7d. a lb. makes a profit of 17s. on the whole transaction. How much tea did he buy?
10. Find a number of two digits such that if it be divided by the product of its digits the quotient is 2, and if 27 be added to the number the order of the digits is reversed.

EUCLID (Books I.-IV. and VI., with definitions of Book V.)

Ordinary abbreviations may be used, but the method of proof must be geometrical.

1. If the side BC of the triangle ABC be greater than the side AB, prove that the angle BAC will be greater than the angle ACB.
2. The opposite sides and angles of parallelograms are equal to one another, and the diameter bisects them, that is, divides them into two equal parts.
 If two angles of a parallelogram are bisected by one of its diagonals, the other diagonal will bisect the remaining angles.
3. Enunciate and prove Euclid's proposition respecting the squares on the sides of obtuse-angled triangles.
4. If two circles touch each other internally, the straight line which joins their centres, being produced, shall pass through the point of contact.
5. Define the "angle in a segment of a circle," and prove that the angle in a semicircle is a right angle.
 Prove that through a given point within a circle there can generally be drawn two chords whose middle points shall lie upon a given chord, and show how to draw these two chords.
6. Describe an isosceles triangle having each of the angles at the base double of the vertical angle.

7. Define "ratio" and "similar rectilineal figures."

The sides about the equal angles of triangles which are equiangular to one another are proportionals.

Through one angular point A of a triangle a straight line ADE is drawn parallel to the opposite side BC, and AD is half, and AE double of BC. Prove that the straight lines BD, BE pass through the points of trisection of AC.

MECHANICAL DRAWING (ELEMENTARY).

(The construction of Plane Scales and the use of simple Mathematical Instruments as shown by the neat Drawing of Plane Geometrical Figures to scale.)

1. The accompanying drawing is not drawn to scale, but all the necessary dimensions are shown in inches. Make a copy of it to the scale shown below it. This must be neatly inked in with Indian ink.

If you have not time to copy the whole of the drawing you should ink it and finish a part of it.

N.B.—No marks will be given for making a copy the same size as the original.

2. A length of 3 feet 9 inches is shown on a drawing by a line $4\frac{1}{2}$ inches long. Draw a scale for the drawing showing 5 feet, and divide it to show inches. What fraction will represent this scale?

APPRENTICES IN HER MAJESTY'S DOCKYARDS.

1. Vacancies for appointments as Apprentices to Shipwrights, and to Fitters Steam Branch, in Her Majesty's Dockyards at Chatham, Sheerness, Portsmouth, Devonport, and Pembroke, are open to public competition.

2. The Lists of Candidates for these appointments are kept at the Admiralty in London, and by the Superintendents of the Dockyards named in paragraph 1, to whom, or to the Secretary of the Admiralty, all applications must be sent in before the 1st of March in each year.

3. The Candidates, who must be the sons of British subjects, must be not less than Fourteen, nor more than Sixteen years of age on the first day of the Educational Examination. Proof of age will be required by the production of a Certificate of Birth. A declaration before a Magistrate, accompanied by a Certificate of Baptism, will be accepted in those cases only in which it is impossible to procure a Certificate of Birth. The Superintendent of the Dockyard is to take particular care that no boy's name on the Dockyard List is forwarded to the Admiralty for examination, unless his age is within the prescribed limits.

4. Candidates, who will be examined at the Dockyards, will be required to satisfy the Superintendents of the Dockyards as regards their age, respectability, good character, and physical fitness, before they can be considered eligible for entry into the Dockyard. Candidates in or near London, and who elect to be examined in London, will be required to satisfy the Admiralty on the points named above. If these conditions are satisfactorily fulfilled, they will then be examined by the Civil Service Commissioners in Educational subjects.

5. Candidates will not be admitted for examination at the Dockyards until they have been pronounced fit for Her Majesty's Service by the Medical Officers of the Yard. Candidates in or near London may be examined under the directions of the Medical Director-General of the Navy in London. The Medical examination will be conducted in all respects in strict accordance with the Instructions for Examination of persons for admission into the Naval Service. Candidates should possess the following physical qualifications at the minimum age:

Height	4 ft. 8 in.
Weight	90 lb.
Girth of Chest	26 in.;

but a deficiency in these requisites will not exclude Candidates who may be pronounced by the Medical Officers to be generally calculated to make efficient workmen. All such cases, however, are to be specially noted in the lists sent to the Admiralty, and the grounds upon which such Candidates have been admitted are to be fully stated. All Candidates must produce Certificates to the satisfaction of the examining Medical Officers that they have been re-vaccinated, or they must be re-vaccinated before they can be considered eligible for entry into the Dockyard.

6. The educational examination will be held by the Civil Service Commissioners in London as well as at the several Dockyards, and will take

100 SECTION I.—REGULAR COMPETITIONS.

place in the month of April of each year. The exact date may be ascertained by application to the Secretary, Civil Service Commission, Cannon Row, Westminster, S.W., on or after the 1st of January in each year. A fee of 1s. will be required from each Candidate attending the Examination.

7. The following will be the Subjects of Examination, and the maximum number of marks for each subject:—

Arithmetic	350
Orthography	100
Handwriting	100
Grammar	100
English Composition	100
Geography	100
Euclid, First Three Books	150
Algebra (up to and including Quadratic Equations)	150
Total	<u>1,150</u>

8. Candidates who fail to pass in the first three subjects will be disqualified, and their other papers will not be examined. Those Candidates up to the required number who obtain the greatest number of marks in all the subjects named in paragraph 7 will be eligible for appointment as Shipwright or Steam Branch Fitter Apprentices.

9. Apprentices will be bound by indentures to serve for seven years, and no Candidate will be entered unless some relative or friend is able and willing to undertake the duty of the second party to the indenture as to the support, &c., of the Apprentice during his apprenticeship.

10. Apprentices are to attend the Dockyard School for such periods and to pursue such studies as may from time to time be determined upon.

11. On the expiration of their period of service Apprentices will receive a certificate of their character and conduct, the progress they have made in their trade, and in the knowledge of the subjects prescribed for Dockyard Apprentices.

12. The pay of Shipwright and Steam Branch Fitter Apprentices serving in the Dockyards is as follows:—

	s.	d.	
First year	3	0	a-week.
Second year	5	0	„
Third year	7	0	„
Fourth year	9	0	„
Fifth year	11	0	„
Sixth year	13	0	„
Seventh year	15	0	„

13. Board wages will only be allowed in cases of distress to boys whose fathers have been killed in the Naval Service or in Service under the Admiralty, or where the circumstances of the family have altered since the entry of the apprentice in the Dockyard.

14. A limited number of Apprentices who pass the best examination* at the end of their third year, and are recommended for conduct, will be permitted to attend school for another year.

* The subjects of examinations will be those common to the apprentices and the students in the Training School.

A like rule will apply to the examination of Apprentices at the end of the fourth year.

15. After the examination at the end of the fifth year, Apprentices who pass a highly creditable examination and are recommended for conduct, will be eligible for transfer to the Training School, the Shipwright Apprentices being transferred as Students in Naval Construction and the Steam Branch Fitter Apprentices as Engineer Students. The number to be admitted to the Training School will be fixed annually by the Board of Admiralty, in accordance with the requirements of the Service.

The Students so selected from the Shipwright and Steam Branch Fitter Apprentices will remain in the Training School for one year, and will, while at the Training School, receive respectively the same practical instruction in shipbuilding and in the workshops, and will be subject to the same regulations as those Students in Naval Construction and Engineer Students respectively, who pass the whole period of service in the Training Schools.

16. To meet the expenses attendant upon admission to the Training Schools these selected Students will receive exhibitions of the value of £25 each, tenable for one year.

17. Students in Naval Construction on passing satisfactorily from the Training School, will be admitted to the Royal Naval College at Greenwich, on probation, for one year, at the expiration of which period, a report of their progress will be made to the Admiralty. Should the report be unsatisfactory, the students will be discharged from the Service or sent back to the Dockyards, as may be determined.

The Engineer Students on passing satisfactorily from the Training School will be entered in Her Majesty's Navy as Acting Assistant Engineers, and from this time will be subject to the conditions laid down in Article 27 and in the subsequent Articles in the Regulations for entry of Engineer Students.

18. While in the Training School and at the College, the students in Naval Construction will be required to wear a suitable uniform, and Admiralty Students will, while at the College, receive the same pay as the Acting Assistant Engineers.

19. *Bonds.*—On entry in Training School, a student will be required to join with his parents or guardians in a bond for £300 to enter into the Service as Assistant Constructor, or Assistant Engineer, if his services are required.

20. An Assistant Constructor will not be permitted to leave the Service until seven years have expired after the completion of his term at the Royal Naval College, unless he shall pay the sum of £300 if entered as a student from the apprentice class, or the sum of £500 if entered as a student by competition.

This payment is for the purpose of defraying the charges incurred by the public for his education.

21. *Liability to Foreign and Sea Service.*—Every student entering the Royal Corps of Naval Constructors will be liable to serve at any foreign Naval Establishment the Admiralty may direct; he will also have to proceed to sea if so required.

N.B.—The above Regulations will be generally followed, but my Lords will modify them from time to time as may be considered desirable.

EXAMINATION PAPERS.

ARITHMETIC.

(Time allowed, $2\frac{1}{2}$ hours.)N.B.—*Be careful—*

- (1) to put the number to each question ;
 (2) to send up the working as well as the answers.

1. Write out in words the number 470060019.
2. Write down in figures ten million seventy-five thousand and sixty-eight.
3. Write down in figures six hundred and twenty million ninety thousand and forty-five.
4. Multiply 96,087,654 by 706,092.
5. Divide 811,960,745 by 879, and give the remainder.
6. From £580,062 1s. 0 $\frac{1}{2}$ d. take £291,067 13s. 7 $\frac{3}{4}$ d.
7. Multiply £495 19s. 11 $\frac{1}{2}$ d. by 72.
8. Multiply £537 13s. 5 $\frac{3}{4}$ d. by 867.
9. Divide £2,047,358 18s. 0d. by 96.
10. Divide £897,063 17s. 6 $\frac{3}{4}$ d. by 489.
11. Reduce 2 cwt. 17 lbs. 6 $\frac{1}{2}$ ozs. to drams.
12. If the carriage of 2 tons 3 cwt. 1 qr. 18 lbs. of goods for 480 miles amounts to £5 1s. 3 $\frac{1}{2}$ d., what weight can be carried the same distance for £17 14s. 6 $\frac{1}{2}$ d.?
13. Find (by Practice) the value of 2 lbs. 7 ozs. 18 dwts. 16 grains at £1 10s. per ounce.
14. Find the simple interest on £675 for $4\frac{1}{2}$ years at $3\frac{1}{2}$ per cent. per annum.

N.B.—*The first fourteen questions should be answered before the following are attempted.*

15. If 7 hours are required in order to travel 168 miles, how long a time will be required when the distance is diminished by one-seventh and the rate increased by one-fourth?
16. What sum of money will amount to £1,326 5s. 7 $\frac{1}{2}$ d. in $5\frac{1}{2}$ years at $4\frac{1}{2}$ per cent. per annum simple interest?
17. Add together $4\frac{2}{3}$, $\frac{3}{8}$, $1\frac{1}{10}$, and $2\frac{1}{12}$.
18. Subtract $2\frac{2}{3}$ from $11\frac{1}{12}$.
19. Multiply together $3\frac{1}{2}$, $2\frac{1}{4}$, $\frac{3}{8}$, and $1\frac{3}{4}$.
20. Divide $7\frac{3}{4}$ by $\frac{1}{4}$.
21. Add together 170·9016, 9·00865, 6001, 375·00487, and 13·68005.
22. Subtract 189·095137 from 509·08075.
23. Multiply 15·6854 by 2·0809.
24. Divide 2·18100168 by 27·016.
25. Divide 16·91418 by ·00703.
26. Reduce 1·0758 of £1 13s. 11 $\frac{1}{2}$ d. to pence and the decimal of a penny.
27. Find the value of $\frac{.715}{.0165} \times \frac{.072}{119.16}$ of 10s. 3 $\frac{3}{4}$ d., and express the result as the decimal of £1.
28. Multiply by duodecimals 5 ft. 7 in. 8 pts. by 9 ft. 11 in. 5 pts. What does the result become when expressed in square feet, square inches, and the fraction of a square inch?

29. A has £3 5s., and B has 80·01 francs. How many francs must B give to A in order that his money may then be three-fifths of A's, 25·4 francs being equal to a pound sterling?
30. If 12 men, or 20 women, or 30 children, can do a certain work in 36 hours, in what time would 4 men, 6 women, and 11 children do it?
-

ADDITION.

(Similar to that set for Engineer Students.)

COPYING.

(Time allowed, 10 minutes.)

A pieté was set similar to that given to Engineer Students.

DICTION.

(Two pieces were given similar to those in Examinations for Boy Clerkships.)

ENGLISH COMPOSITION.

(Time allowed, 1 hour.)

Choose one of the following subjects :—

Our Colonies ; or, Christopher Columbus ; or, Skating.

N.B.—*In all your exercises attention should be paid to orthography, handwriting, punctuation, grammar, and correctness of expression.*

ENGLISH GRAMMAR.

(Time allowed, 1½ hour.)

1. In the following, state with regard to each of the words in *italics* what its use is in the sentence, and then name its part of speech :—

“Lives of great men all remind us
We may make our lives sublime,
And, departing, leave behind us
Footprints on the sands of time.”
2. Divide the following into simple sentences : state what kind of sentence each of these is ; and then divide each into its *subject* and *predicate*.

“When I am forgotten, as I shall be,
And sleep in dull cold marble, where no mention
Of me more must be heard of, say, I taught thee ;
Say, Wölsey—that once trod the ways of glory,
And sounded all the depths and shoals of honour—
Found thee a way, out of his wreck, to rise in.”
3. Parse fully all the words in the *last line* of the quotation in Question 2.
4. How many kinds of verbs are there ? Name them, and write sentences containing an example of each kind.
5. Define the following terms : pronoun, adverb, adjective, preposition, syntax, simple sentence.
6. Correct the following sentences wherever you think correction necessary, stating your reasons in each case :

I am a plain blunt man that love my friend.
 I thought I should have died with laughter.
 Nothing but grave and serious studies delight him.
 If we look within the rough outside we shall be richly rewarded
 by its perusal.
 Sailing up the river, the whole town may be seen.
 It is not for such as we to sit with princes of the land.

GEOGRAPHY.

(Time allowed, 1½ hour.)

[You are recommended to read carefully the printed questions, and to write your answers as neatly as possible. Extra marks will be given for neatness in map-drawing, but only so far as it is accompanied by accuracy.]

1. On the accompanying outline map of Scotland, mark out and name all the counties along the eastern coast; the rivers Clyde, Dee, Tweed, Tay; the islands of Mull, Lewis, Islay, Skye; and the following places:—Greenock, Inverness, Dunbar, Ayr, Portpatrick, Portree, Cupar, Dumfries, Inverary.
2. Describe as accurately as you can the geographical position of each of the following colonial possessions; name a principal article of export from each, and say to what country each belongs:—Cuba, Mauritius, Philippine Islands, Java, Newfoundland.
3. Draw a map of South America, marking the boundaries of, and naming the countries of which it is made up, with their capitals, the chief rivers and mountain ranges, and the positions of Capes S. Roque, Frío, Parina; Trinidad, Falkland Islands; and the Gulfs of Maracaybo, Panama, and Darien.
4. Describe the situation of each of the following places, and state anything for which it is remarkable:—New Orleans, Mocha, Brindisi, Delhi, Colombo, Rangoon, Cartagena, Strasbourg, Kiel, Petropaulovsk.
5. In each of the following countries name an important river and the principal town upon it:—France, Italy, Spain, Russia, Hungary, India, China, United States, Australia, Canada.
6. Write out a short description of China; or of Portugal.

EUCLID. (Books I., II., III.)

(Time allowed, 1½ hour.)

(Ordinary abbreviations may be used, but the method of proof must be geometrical.)

1. If from the ends of a side of a triangle, there be drawn two straight lines to a point within the triangle; these shall be less than the other two sides of the triangle, but shall contain a greater angle.
2. Describe a parallelogram that shall be equal to a given triangle, and have one of its angles equal to a given rectilineal angle.
3. Describe a square that shall be equal to a given rectilineal figure.
4. Prove that in a circle, the angle in a semicircle is a right angle.
 If BAC is an angle in a semicircle, BC being a diameter, and if the angle ABC is double the angle ACB, show that BC is double AB.
5. Prove that the diagonals of a rhombus bisect each other at right angles.

ALGEBRA.

(Up to and inclusive of Quadratic Equations.)

(Time allowed, 2 hours.)

1. Find the value of

$$15ab^2 - \frac{b^2}{a^2 + c^2} [4a(a^2 - b^2) - 2c\{a + b(b + 2ab - c)\} + 3a^2]$$

when $a = 2$, $b = -2$, $c = 3$.

2. Multiply $x^3 - 7ax^2 + 4a^2x + 12a^3$ by $x^2 + 6ax + 8a^2$, and divide the product by $x^2 + 3ax + 2a^2$.

3. Simplify $(a + b) + (a - b) + ab + \frac{a}{b} + \frac{b}{a}$; if $a = \frac{b}{b+1}$ and $b = \frac{c-2}{2}$.

4. Find the Least Common Multiple of

$$x^3 + 3x^2 - 6x - 8, \quad x^3 - 2x^2 - x + 2, \quad x^2 + x - 6.$$

5. Simplify $\frac{x}{a^2 - ax + x^2} + \frac{1}{a - x} + \frac{a^2}{a^3 + x^3}$.

6. Extract the square root of $4x^4 - 12x^3 + 13x^2 - 6x + 1$.

7. Solve the equations:—

$$(i.) \frac{3x-2}{4} + \frac{7x-2}{3} = 2x + \frac{4-x}{2}.$$

$$(ii.) \left. \begin{aligned} \frac{x+2}{7} + \frac{y-x}{4} &= 2x-8 \\ \frac{2y-3x}{3} + 2y &= 3x+4 \end{aligned} \right\}$$

$$(iii.) \frac{1}{x-1} - \frac{1}{x+3} - \frac{1}{35}.$$

8. If 17 be subtracted from a certain number the remainder is equal to one-third of the sum of 13 added to the same number. Find the number.

9. The sum of two numbers is equal to five times their difference, and the two numbers multiplied together are equal to 54. Find the numbers.

VICTUALLING YARD APPRENTICES.

The limits of age are $13\frac{3}{4}$ and 15. The subjects of examination and marks awarded are as follows:—

- (1) Arithmetic, 350; (2) Spelling, 100; (3) Handwriting, 100. Physical qualifications: Height, weight, girth of chest, and strength, 200.

The list of candidates is kept by the Superintending Storekeepers of the Victualling Yards. All applications should be sent in before the 1st of May or the 1st of November in each year.

BOY CLERKS (LOWER DIVISION).

These appointments are intended to be a stepping-stone to the higher branches of the Service. Boy Clerks, for instance, are allowed certain privileges, referred to below, in the Examinations for Men Clerkships of the Lower Division. Besides this, the work upon which they are employed in most of the departments constitutes the best training to enable them to take high marks in some of the subjects in the Men Clerks, Excise, and other Examinations. The competition is not as severe as for other situations in which the age is higher, the close limits 15 to 17 doubtless reducing the number of competitors.

The following are the official regulations :—

These examinations are open, under such general restrictions as may be laid down, to all natural-born subjects of Her Majesty, being of the prescribed age and of good health and character.

A fee of 1s. will be required from every candidate attending the examination.

Candidates must be over 15 and under 17 years of age on the first day of the Competitive Examination.

The subjects of Examination will be as follows :—

1. Handwriting.
2. Orthography.
3. Arithmetic, including Vulgar and Decimal Fractions.
4. Copying MS. (to test accuracy).
5. English Composition.
6. Geography.

No Candidate will be eligible who does not satisfy the Civil Service Commissioners of his competency in Handwriting, Orthography, and Arithmetic.

Each competitor named in a list of successful Candidates will remain thereon until he attains the age of 19 years, unless in the meantime he has been appointed to a situation to some public office.

Boys on completing the 19th year of their age, or on receiving appointments, will be removed from the list.

From these lists the Civil Service Commissioners, on the application of Departments having vacancies, will supply, on probation, the requisite Clerks, whether for permanent or temporary duty. Selections will, as a general rule, be made by the Civil Service Commissioners according to the order of the names on the list ; but the Civil Service Commissioners may select any Clerk who, in his examination, has shown special qualifications in any particular subject, if special application for such a Clerk be made by any Department.

No Clerk will remain more than one year in any Department unless at the end of that time the Head of the Department shall signify in writing to the Civil Service Commissioners that the Clerk is accepted by the Department. If he is not accepted, the Department will report to the

said Commissioners the reasons for not accepting him; and such Commissioners will thereon supply another Clerk in his room; and will decide whether the name of the rejected Clerk shall be struck off the lists, as unfit for the Service generally, or whether he shall be allowed a trial in another Department.

Boy Clerks will not be retained as such in any Department after completing their 19th year; but they may, after two years (or, if admitted after 17 years of age, one year) of good service, to be certified in writing by the Head of their Department to the Civil Service Commissioners, compete under "Regulation II," among themselves, for so many Men Clerkships of the Lower Division as shall not exceed one-fourth of the number of competitors.

Separate lists will be made out of the Competitors successful in the limited competitions, and selections for appointments to Men Clerkships will (subject to Regulation 9) be made alternately from these lists and from the lists of competitors successful in the open competitions.

Examinations for Boy Clerkships of the Lower Division of the Civil Service are held in London, Edinburgh, Dublin, and Aberdeen. When a vacancy occurs in any one of the cities above mentioned, it will be offered to the candidate highest on the list at the time, but he will not be required to accept it and quit his place of residence if he prefers to wait for the chance of obtaining an appointment at that place during his period of eligibility.

The salaries of Boy Clerks begin at 14s. per week, and will rise by 1s. per week per annum as long as they are employed.

Nearly all the vacancies occur in London.

Although Boy Clerks cannot be retained as such after the age of 19, comparatively few boys remain in this class till the limit of age is attained, as most of them succeed before that time in obtaining other situations in the Civil Service. The examinations are held twice or thrice a year.

The following Table will show the nature of the competition for these appointments.

Date.	Number of Vacancies.	Number of Candidates.	Number who Qualified.	Proportion of Qualified Candidates for each Vacancy.
May 1885 . . .	44	501	224	5·1
Aug. 1885 . . .	61	439	206	3·4
Feb. 1886 . . .	63	666	280	4·4
July 1886 . . .	62	655	271	4·4
Oct. 1886 . . .	54	589	272	5·0

The following Table will show the marks of the first and last successful candidates in a recent examination:—

108 SECTION I.—REGULAR COMPETITIONS.

—	Arith- metic.	Com- pound Addition.	Ortho- graphy.	Hand- writing.	Copying Manu- script.	English Com- position.	Geo- graphy.	Total.
Maximum	300	100	400	400	200	200	200	1800
	281	92	390	315	121	145	166	1510
	293	100	333	278	80	108	143	1335

Under the rule which allows persons who have served continuously for two years in certain situations in the Civil Service to deduct from their age in competing in certain Civil Service Examinations any time not exceeding five years which they may have served, Boy Clerks on reaching the age of 19 may, if they have not been already successful, continue to compete in the Examinations for Men Clerks, Excise, Customs, &c., until such time as their age exceeds the limit prescribed for the outside public by such period as they may have served as Boy Clerks. Again, under the rule which allows Boy Clerks to compete amongst themselves for a number of vacancies as Men Clerks, not exceeding one-fourth of those offered in an examination, a considerable advantage is often secured. As an example, in a recent examination in which nine vacancies were reserved for Boy Clerks, the last successful candidate obtained only 1705 marks, which would have placed him as low down as No. 152 on the list in the open competition held at the same time for forty vacancies. The hours of attendance required from Boy Clerks are generally six daily. About three weeks' holiday is allowed annually in most of the departments.

EXAMINATION PAPERS.

SET No. 1.

COPYING.

(Time allowed, $\frac{1}{2}$ hour.)

On the form supplied, copy, in your best handwriting, as much as you can of the following in the prescribed time.

JAPAN.

The fluctuations of trade during a period of five years are shown in the following Table of goods imported into Hiogo.

Article.	1878.	1879.	1880.	1881.	1882.
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
Cotton manufactures	1,540,238	1,965,721	2,067,021	2,704,404	2,280,257
Woollen ditto	1,608,551	1,684,014	1,878,607	1,665,875	692,797
Cotton and Woollen ditto	48,122	175,062	537,436	439,210	225,819
Metals	442,085	479,858	739,945	694,975	601,646
Ammunition	1,473	—	3,979	—	—
Miscellaneous—					
Eastern	579,021	799,381	745,243	393,120	529,810
Western	1,166,607	1,947,118	1,875,635	1,437,575	1,996,925
Sundries not specified	—	—	—	—	49,531
Total	5,386,097	7,051,154	7,847,866	7,335,159	6,376,785

The past year, especially in the earlier months, witnessed an unusual depression in the market. Few contracts were made, owing to the absence of any demand for goods in the interior, and dealers were slow in taking delivery of goods imported to order. The attack on the Japanese Legation in Corea, in July, and the imminence of war with that country, caused unusual fluctuations in the currency, and impeded business. An amicable settlement of the difficulty on the 30th August gave hopes of an improvement in the market in the following month, which were realised by the existence of a fair demand for most articles. Towards the end of the year, however, the market fell, owing to a speculative advance in the currency having caused buyers to be cautious. The year closed with a quiet market and no signs of improvement.

The figures in the Table show that cotton manufactures ranked highest in 1881, although the import trade in that year was less satisfactory than the figures would suggest. An immense falling off is noticeable in woollens, the total decrease being 973,078 dollars. With the exception of lawns, singlets, and drawers, thread, cotton, yarn, cotton handkerchiefs, blankets, camlet cords, flannels, and serges, all cotton as well as woollen manufactures show a considerable falling off. Cotton and woollen manufactures show a decrease of 213,391 dollars.

DICTATION. (1.)

(Time allowed, $\frac{1}{2}$ hour.)

The exiled prince had fixed 4 o'clock for receiving those waiting to see him off, and he received immediately on their arrival those not intending to stay. Accordingly, at 4 o'clock the Royal family assembled in the gallery, on the first story. The visitors having assembled in the large ground-floor vestibule, the court of honour, and the park, ascended in groups, and saluted the Count, who introduced them to those members of the family to whom they were unknown. The ladies were mostly attired in dark dresses, the gentlemen in travelling dress. The Count went from one to another, having a word of thanks, regret, or hope, for each. He was a little flushed with fatigue, and his eyes looked slightly feverish, but

he maintained a calmness and a resolution which never flinched to the end. Whoever had entered the gallery would have been puzzled by the singular character of the assembly. There was undoubtedly a feeling of sadness which could not be disguised, but there was also an aspect of enthusiasm and pride, in strange contrast with this first impression. It seemed impossible that a prince, thus surrounded and saluted in this lordly mansion, offering, in short, a spectacle of grandeur, could be doomed to banishment, and was preparing to lead the painful life of an exile, without any assignable limit to his sufferings. This, however, was the feeling pervading the distinguished assemblage. They were divided between surprise, indignation, and grief; and while such was the feeling inside, numberless rumours were current outside. It was announced that a body of police had arrived, with orders to restrain the crowd, and even to prevent its formation; that the soldiers in garrison were coming on the plea of maintaining order; and that a placard, announcing the departure of the exile, was being torn down by the authorities.

(A second piece was given.)

ARITHMETIC.

(To Vulgar and Decimal Fractions.)

(Time allowed, $2\frac{1}{2}$ hours.)

You are requested to put the number to each question, and to send up the working as well as the answers.

N.B.—(1) *You are particularly recommended to answer the questions in the order in which they are set; not omitting any one unless you are unable to do it.*

(2) *No extra credit will be given for completing your answers in less than the time allowed.*

1. Add together $4\frac{7}{8}$, $13\frac{2}{3}$, $2\frac{1}{4}$, and $3\frac{1}{2}$.
2. Subtract $11\frac{2}{3}$ from $15\frac{4}{5}$.
3. Multiply $4\frac{1}{2}$ by $1\frac{2}{3}$.
4. Divide $2\frac{1}{3}$ by $1\frac{4}{5}$.
5. Add together $71\cdot046$, $\cdot46038$, $3\cdot982$, and $\cdot048738$.
6. Subtract $86\cdot408367$ from $98\cdot28935$.
7. Multiply $4\cdot30647$ by $\cdot0073061$.
8. Divide $\cdot6720202$ by $16\cdot54$.
9. Reduce $3\cdot04$ of 1 mile 7 yards to yards and the decimal of a yard.
10. Reduce 2 acres 1 rood 17 perches 2 yards to feet.
11. If 3 cwt. 2 qrs. 7 lbs. cost £2 7s. 6d., what would be the price of 5 cwt. 7 lbs.?
12. Find (by Practice) the cost of 3,476 articles at 17s. $10\frac{1}{2}$ d. each.
13. What is the simple interest on £1,725 for $3\frac{1}{2}$ years at $2\frac{1}{2}$ per annum?
14. Add together $\frac{4}{7}$, $3\frac{7}{8}$, $5\frac{7}{8}$, and $\frac{9}{14}$.
15. Subtract $19\frac{1}{3}$ from $23\frac{1}{6}$.
16. Multiply together $3\frac{1}{2}$, $\frac{1}{3}$, $2\frac{1}{3}$, and $\frac{9}{16}$.
17. Divide $2\frac{7}{10}$ by $2\frac{3}{4}$.
18. Add together $370\cdot46305$, $41\cdot9876$, $\cdot005684$, $3\cdot98746$, and 578.
19. Subtract $80\cdot4836565$ from $100\cdot20832$.
20. Multiply $57\cdot9436$ by $8\cdot4035$.

21. Divide 27·06473 by ·20435, giving the result to three places of decimals.
22. Reduce $\frac{3}{4}$ of 1 week 7 hours to minutes and the decimal of a minute.
23. In 154,737 inches how many miles, furlongs, poles, yards, &c.
24. If 16 men working 10 hours a day can complete a piece of work in 25 days; how many men will be required to do half as much work in twice the number of days, working 8 hours a day?
25. Find (by Practice) the dividend on £4,705 10s. at 14s. 7½d. in the £.
26. What will £7,275 amount to in 3 years at 4½ per cent. per annum, compound interest, neglecting fractions of a penny?
27. Add together $9\frac{8}{11}$, $1\frac{1}{10}$, $\frac{3}{4}$, and $4\frac{2}{5}$.
28. Subtract $3\frac{2}{5}$ from $7\frac{3}{4}$.
29. Multiply together $3\frac{8}{15}$, $8\frac{3}{4}$, $\frac{80}{121}$, and $2\frac{3}{4}$.
30. Divide $3\frac{7}{13}$ by $1\frac{1}{18}$.
31. Add together $\frac{1}{16}$ of a quarter, ·37 of a bushel, and 4·05 of 1 peck; give the answer in quarts and the decimal of a quart.
32. Subtract 4·86 of $\frac{1}{4}$ of £3 3s. 7d. from ·693 of £5, and express the answer in pence and the decimal of a penny.
33. Multiply ·769 by ·45, and express the answer in a decimal form.
34. Divide 3·49 by ·707, and express the answer in a decimal form.
35. Express 2 qrs. 14 lbs. as the decimal of half a ton.
36. In 4,738 pints, how many quarters, bushels, pecks, &c.
37. Express decimally the number which bears the same ratio to ·625 that $\frac{1}{4}$ of $\frac{1}{7}$ does to $2\frac{1}{3}$.
38. Find (by Practice) the value of 30,756 articles at £1 13s. 8d. for 8.
39. At what rate per cent., per annum, simple interest, will £3,750 amount to £4,078 2s. 6d. in $3\frac{1}{4}$ years?

ADDITION.

(This Exercise was similar to that given at page 44.)

COPYING MANUSCRIPT.

(Time allowed, $\frac{1}{2}$ hour.)

This was similar in length and difficulty to that referred to on page 45.

SUBJECTS FOR ENGLISH COMPOSITION.

(Time allowed, $2\frac{1}{2}$ hours.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style.

1. The growth of America; or, 2. Wild animals in captivity; or, 3. A cricket match.

You are to choose only one of these subjects, and your composition should fill not less than two folio pages.

GEOGRAPHY. (Optional.)

(Time allowed, 3 hours.)

Extra marks will be given for neatly drawn maps, but only so far as they are accurate.

1. Explain the terms—Degree of latitude, west longitude, Tropic of Cancer, watershed, delta; and give brief descriptions of the following localities:—Sahara, Deccan, Plateau of Tibet, and Great Karroo.
2. On the accompanying outline map of Ireland mark the boundaries of the different provinces, and the names but not the boundaries of the counties of Ulster. Insert also the names of the chief arms of the sea.
3. Describe a coasting voyage by steamer from Glasgow to Liverpool *or* London to Edinburgh.
4. Draw a map of the course of the Loire or Rhone, showing its source and tributaries, the countries it drains, and the principal towns situated on its banks.
5. Enumerate the principal Australian ports to which an English steamer might be bound; describe the routes, and the sort of cargo that might profitably be carried on the outward and homeward voyages.
6. Name the lakes and chief rivers of British North America. Show by a sketch-map their position.
7. Name and describe the position of any towns in the United Kingdom specially connected with the following trades or industries:—Pottery, Glass-blowing, Tanning, Hosiery, Strawplait, Brewing.
8. State the *exact* position of all, and describe shortly any four of the following places:—Ottawa, Londonderry, Ballarat, Trinidad, Pretoria, Simla, Swansea, the Trossachs.
9. What are the causes of the alternations of day and night and of the variations of the seasons?
10. Give the names and directions of the chief mountain ranges of Germany, and show how their position determines the direction of flow of the rivers.

SET No. 2.

N.B.—With one exception, the papers set in these Examinations are always similar to the foregoing. Recently the Arithmetic paper has presented a novel feature. This has been of the more advanced character usually given in Examinations for Outdoor Officers of Customs. The following was set recently.

1. Add together $3\frac{1}{4}$, $1\frac{1}{3}$, $1\frac{2}{3}$, and $\frac{1}{9}$.
2. Subtract $9\frac{2}{3}$ from $17\frac{1}{3}$.
3. Multiply $5\frac{1}{2}$ by $1\frac{5}{6}$.
4. Divide $2\frac{1}{3}$ by $2\frac{2}{3}$.

5. Add together $\cdot 90379$, $81\cdot 907$, $\cdot 137989$, and $53\cdot 72$.
6. Subtract $52\cdot 736998$ from $61\cdot 73621$.
7. Multiply $2\cdot 70538$ by $\cdot 0980235$.
8. Divide $\cdot 1424962$ by $73\cdot 15$.
9. Reduce $2\cdot 17$ of 7 furlongs 1 yard to feet and the decimal of a foot.
10. Reduce 1 acre 3 roods 37 perches 5 yards to square feet.
11. If 3 cwt. 1 qr. 16 lbs. cost £2 7s. 6d., what would be the price of 3 cwt. 2 qrs. 8 lbs.?
12. Find (by Practice) the cost of 2,937 articles at 18s. $11\frac{1}{2}$ d. each.
13. What is the simple interest on £2,638 for $4\frac{1}{2}$ years at $3\frac{1}{2}$ per cent. per annum?
14. Add together $1\frac{1}{3}$, $4\frac{7}{12}$, $2\frac{3}{24}$, and $1\frac{7}{12}$.
15. Subtract $17\frac{3}{4}$ from $22\frac{3}{4}$.
16. Multiply together $2\frac{1}{4}$, $2\frac{1}{4}$, $2\frac{7}{8}$, and $\frac{81}{128}$.
17. Divide $6\frac{3}{4}$ by $7\frac{7}{8}$.
18. Add together $553\cdot 21209$, $\cdot 973491$, $321\cdot 07$, $2\cdot 09899$, and $\cdot 073$.
19. Subtract $63\cdot 3787293$ from $110\cdot 26871$.
20. Multiply $48\cdot 0573$ by $9\cdot 7895$.
21. Divide $33\cdot 42386$ by $\cdot 9823$, giving the result to three places of decimals.
22. Reduce $\frac{7}{16}$ of 3 lbs. 11 ozs. 7 dwt., to grains and the decimal of a grain.
23. In 1,173,892 drams how many tons, cwt., qrs., lbs., &c.?
24. If 24 men working 11 hours a day can complete a piece of work in 35 days, how long will 22 men take to do thrice as much work, working 7 hours a day?
25. Find (by Practice) the dividend on £3,503 15s. at 16s. 5d. in the £.
26. What will £8,323 amount to in 3 years at $4\frac{1}{2}$ per cent. per annum, compound interest, neglecting fractions of a penny?
27. Express $\frac{3\frac{1}{2}}{8\frac{3}{5}} - \frac{3 + \frac{1}{17 + \frac{1}{3}}}{3 + \frac{3}{6 + \frac{1}{13}}} + \cdot 625$ of $2\frac{3}{4}$ as a vulgar fraction in its lowest terms.
28. A certain number of articles were bought for £25 7s., the total number of articles was the same as the number of farthings each cost. How many articles were bought, and what was the price per dozen?
29. Divide £4,531 10s. among A, B, C, and D, so that B has two-thirds less than A; C has $\frac{1}{3}$ more than B; and D has half as much as A.
30. The expenses of 7 tourists for 11 days amounted to £56 15s. 9d. Another party started at the same time and in all spent £89 8s. 9d., the average expenditure per man being $\frac{2}{3}$ of the average of the former party. How many days were the second party away?

BOY COPYISTS.

Examinations are held three or four times yearly. The following are the Regulations :—

The limits of age are 14 to 18.

The subjects of examination are :—

1. Handwriting.
2. Orthography.
3. Elementary Arithmetic.

The fee payable by persons attending the examinations will be 1s.

The pay of Boy Copyists will commence at the rate of 4d. per hour : an addition of $\frac{1}{2}$ d. per hour may be allowed by the Civil Service Commissioners at the end of each year of approved service. Should any Boy Copyists be engaged by the piece, they will be paid at such rates as may be fixed by the Civil Service Commissioners with the approval of the Lords Commissioners of the Treasury. Boy Copyists will not be retained, as such, after they shall have reached the age of 20.

The position of Boy Copyist is almost as good as that of Boy Clerk, and, like the latter, it constitutes a good stepping-stone to the higher appointments. The limit of age beyond which Boy Copyists cannot be retained has only recently been extended from 19 (the present limit in the case of Boy Clerks) to 20. The appointment of Boy Copyist offers nearly all the advantages to be obtained by service as a Boy Clerk. Boy Copyists are, as a rule, employed for seven hours daily, so that the pay is about the same in each case. The employment is nearly always continuous.

N.B.—The examinations for *Men* Copyists were abolished in 1886.

EXAMINATION PAPERS.

DICTATION.

(Time allowed, $\frac{1}{2}$ hour.)

The waters subsided in the night as quickly as they had risen, but at daylight a living stream of French grenadiers glided swiftly down the bed of the river, and, as if assured of victory, arrived, without shout or tumult, within a few yards of the walls, when, instead of quitting the hollow to reach the breach, they, like the torrent of the night, continued their rapid course and dashed against the gate. The British soldiers, who had hitherto been silent and observant, as if at a spectacle which they were expected to applaud, now arose, and with a crashing volley smote the head of the French column ! The leading officer, covered with wounds, fell against the gate, and gave up his sword through the bars to the English colonel ; the French drummer, a gallant boy, who was beating the charge, dropped lifeless by his officer's side, and the dead and

wounded filled the hollow. The remainder of the assailants then, breaking out to the right and left, spread along the slopes of ground under the ramparts, and opened a quick irregular musketry. At the same time, a number of men coming out of the trenches leaped into pits which had been dug in front, and shot fast at the garrison, but no attempt to scale the walls at any other point was made, and the storming column was dreadfully shattered.

COPYING TABULAR STATEMENT.

(Time allowed, $\frac{1}{2}$ hour.)

(The statements set are similar to that printed on page 41.)

ARITHMETIC (ELEMENTARY).

(Time allowed, $1\frac{1}{2}$ hour.)

You should put the number to each question, You had better occupy the whole time allowed. No additional credit will be given for rapidity.

(N.B.—The Answers are given in the Appendix.)

1. Write down in words 896035007.
2. Write down in figures Three hundred millions seventeen thousand and seventy-five.
3. Write down in words 8013024.

ADDITION.

4. Add together—

927835
269
7
83401
625783
9719

- 5.—

£	s.	d.
8739	18	0 $\frac{1}{2}$
302	3	2 $\frac{1}{2}$
723	0	10
39	18	2 $\frac{1}{2}$
4804	9	11 $\frac{3}{4}$
909	15	7 $\frac{1}{2}$

SUBTRACTION.

- 6.—

From 893257015
Take 791382107

- 7.—

£	s.	d.
943065	17	8 $\frac{1}{2}$
389117	19	11 $\frac{1}{2}$

The following questions are to be answered in the order in which they are set, and the working is to be shown up:—

8. Multiply 9835713 by 63015.
9. Divide 245673859 by 81.
10. Multiply 5127896 by 95470.
11. Divide 7983591 by 5782.
12. Multiply £98417 13s. 8 $\frac{1}{2}$ d. by 77.
13. Divide £9288470 11s. 4 $\frac{1}{2}$ d. by 9.
14. Multiply £9436 13s. 7 $\frac{1}{2}$ d. by 95.
15. Divide £476214 2s. 9 $\frac{1}{2}$ d. by 75.
16. Multiply £7893 17s. 3 $\frac{1}{2}$ d. by 573.
17. Divide £5285375 16s. 0 $\frac{1}{2}$ d. by 891.

MALE TELEGRAPH LEARNERS, GENERAL POST OFFICE.

Open competitive examinations are held at intervals of about six months, generally for a considerable number of vacancies. The learners are trained at the Government School of Telegraphy, the course extending over a period of about three months. No charge is made for the instruction given, but the learners receive no pay while under instruction. Telegraphists trained in the Government Schools are not, as a rule, employed in the provinces. Provincial appointments are practically in the gift of the postmasters. Competitions for the London appointments take place about twice a year. Competitions are also held from time to time for appointments in Dublin. Vacancies are numerous, as many as 200 having been offered in the course of a year.

The following are the Regulations :—

1. Candidates will be required to satisfy the Civil Service Commissioners—

(a) That their age on the day of the Examination is not less than 14 nor more than 18.

Note.—In reckoning age for competition, persons who have served for two full consecutive years in any Civil situation to which they were admitted with the Certificate of the Civil Service Commissioners, or as registered Copyists in connection with the Civil Service, may deduct from their actual age any time not exceeding five years which they may have spent in such service.

(b) That they are duly qualified in respect of health and character.

2. At each Examination the number of Candidates to be selected will be such as the Postmaster-General may from time to time fix.

3. The Examination will be in the following subjects, viz. :—

1. Writing from Dictation.

2. Handwriting.

3. Arithmetic (first four rules, simple and compound).

4. Elementary Geography of the United Kingdom.

* * Candidates failing in any of the above-named subjects will not be eligible.

4. Application for permission to attend an Examination must be made at such times and in such manner as may be fixed by the Civil Service Commissioners.

5. A fee of 1s. will be required from every Candidate attending the Examination.

Note.—Successful Candidates have to attend the Post Office Telegraph School to undergo a course of instruction in Telegraphy, for which instruc-

tion no charge is made; but they do not receive any pay while at the School.

The course of instruction usually extends over a period of three months; but if, after a trial of one month, or at any later period of their tuition, or during their probationary employment at a Telegraph Office, it becomes evident that they display no aptitude for the duties of a Telegraphist, their nomination or probationary appointment will be cancelled.

The scale of pay is 12s. per week after obtaining a certificate from the School, and commencing the period of probation, rising to 14s. per week on obtaining a certificate of being fully competent for the transmission of public messages, and rising to 16s. per week on being found competent to take sole charge of a Telegraph instrument. After a year at 16s. a week, to advance to £45 a year, rising by £5 a year to £100, with a prospect of attaining £190.

Male Telegraph Learners will be liable to be called upon to do Sunday work.

Candidates are informed that, if successful in this Competition for the situation of Telegraph Learner (Male) they will be admitted to the Postal Telegraph School, on the understanding that, when competent, they will be appointed to be Telegraphists, subject to their services being discontinued at any time, and, except on the score of inability to perform their duties, or misconduct, with compensation at the rate of one month's pay for one year of service.

Should sufficient vacancies, however, occur in the force of Telegraphists not employed under the above conditions, whilst these Candidates are in the Service, they will, according to seniority, be transferred thereto, if they are reported on favourably as to conduct and ability.

The Male staff at the Central Telegraph Station, London, consists of the following :—

126 Senior telegraphists . . .	at £150—£8—£190
262 First class telegraphists . . .	„ £110—£6—£140
904 Second „ „ . . .	„ 12s. per week, and upwards.

There are also numerous higher posts. In a recent Examination, for 80 appointments in London, only 101 candidates qualified as competitors.

The following Table shows the marks obtained by the first candidate and the last candidate successful :—

—	Arithmetic.	Orthography.	Handwriting.	Elementary Geography of the United Kingdom.	Total.
Maximum .	300	300	200	200	1000
No. 1 . .	300	243	185	164	892
„ 80 . .	225	174	103	114	616

In the examinations held on the same date for 10 appointments in Dublin, 42 candidates qualified as competitors. The following Table shows the marks obtained by the first candidate and the last candidate successful:—

—	Arithmetic.	Orthography.	Handwriting.	Elementary Geography of the United Kingdom.	Total.
Maximum .	300	300	200	200	1000
No. 1 . .	300	240	155	158	853
„ 10 . .	300	183	130	156	769

EXAMINATION PAPERS.*

DICTATION.

(Time allowed, $\frac{1}{2}$ hour.)

The income of Shelley during his married life may have averaged something like £300 a year—not too certain in its inflowing, and continually forestalled by some act of lavish generosity for public or private objects. To have rejected (as he did) £2000 a year, tendered on the sole condition of his entailing the estate on his eldest son, or in default on his younger brother, was, under the circumstances, a noble adhesion to principle—for Shelley abhorred the system of primogeniture. He was very migratory in his movements. From Edinburgh he went to York, to Keswick in Cumberland, and to Dublin, where he agitated for Catholic emancipation and repeal of the union; and to Wales and Devonshire. His Welsh quarters he quitted in March 1813, alleging that an attempt at assassination had been twice made upon him. This is only one out of many wondrous stories told by Shelley as pertaining to various stages of his career. Some of them are proved untruths; others more than questionable; others again may be believed without gross credulity. This tale of the assassination is of the more than questionable class: nobody could trace the assassin, or guess why assassination should have been attempted at all. Yet there are some considerations which save the allegation from absolute, unhesitating rejection. Why Shelley told these portentous stories is a strange problem. He had a great respect for truth, and endured much tribulation in the cause of speculative truth, as estimated by himself. In default of a better reason, one is fain to say that he had a most excitable imagination; and his natural habits of exaggeration

* The same Examination Papers were used in London and Dublin.

were greatly fostered by his practice of taking laudanum, in large doses, to mitigate the pangs of a disease which afflicted him to the very end of his noble and too brief career.

(A second piece was given.)

SPACED DICTATION.

(Time allowed, 25 minutes.)

The news of the declaration of war was received with every sign of satisfaction by the people. The troops were not long in proceeding to action. They crossed the frontier early on Saturday morning, and soon had a sharp encounter with the enemy, in which eleven men were killed and twenty wounded. At several other points where the frontier was crossed the enemy quickly retired. Other troops are advancing to the front by forced marches.

FORM FOR SPACED DICTATION.

In writing the Exercise be careful—

- (1.) *To place only one word in each space, and to take care that each word falls entirely within the space,*
- (2.) *To leave no blank spaces,*
- (3.) *To write across from left to right in the ordinary manner, and*
- (4.) *To write with pen and ink, not pencil.*

1			
2			

[The "form" was a sheet of paper divided by lines into 75 spaces of the size indicated above.]

COPYING.

(Time allowed, 20 minutes.)

Copy, with a pencil or style, on the form supplied, as much of the following, including the table of figures, as you can in twenty minutes, taking care to write as well as you can.

TRADE OF BRITISH INDIA.

The imports from this coast, which are small, consist chiefly of ghee, salted fish, and raw wool, the last being the most important. The trade, which amounted last year to Rs. 6,13,947, seems to have no tendency to increase. Our exports thither are also trifling, consisting mainly of

120 SECTION I.—REGULAR COMPETITIONS.

cotton piece goods, rice, and millet. The coast is inhabited by a poor and sparse population of fishermen and shepherds. The total value of the exports was last year 5½ lakhs.

—	Imports.	Re-exports.	Exports.
	Rs.	Rs.	Rs.
1878-79 .	56,67,364	76,92,735	26,54,761
1879-80 .	53,72,103	70,14,694	33,06,852
1880-81 .	49,08,732	72,26,267	32,10,243
1881-82 .	49,36,205	89,43,804	27,63,634
1882-83 .	57,36,204	92,06,424	30,32,361

It is an extensive trade that we carry on with Persia, but without any particular sign of development except in re-exports. Amongst imports, the items that claim mention are: horses, raw cotton, madder, wheat, pearls, perfumery, dates and other fruits, raw silk, raw wool. In all these articles, wheat excepted, the trade of the year shows a substantial increase over that of the previous year, and in some items the increase was very large. The value of dates declined, but the quantities imported were much in excess of the imports of the previous year.

Two-thirds of the re-exports consist of cotton yarn and piece goods. Of the latter coloured goods form the largest part of the exports. This is a very extensive trade, quite 30 times in excess of the exports of Indian cotton goods; and even the exports of grey goods, with which it might be supposed that Indian made cloths could compete with activity, are about eight times larger than those which are produced in India.

ARITHMETIC.

(Time allowed, 1 hour.)

(Easy sums in the first four Rules, Simple and Compound.)

N.B.—*You had better occupy the whole time allowed.*

No additional credit will be given for rapidity.

PART I.

1. Write down in words 30037065.
2. Write down in figures seventy millions nineteen thousand one hundred and sixty-four.
3. Write down in words 425070033.

4. Add together—		5. Add together—	£	s.	d.
	6123		2170	13	2
	917		973	15	6½
	6480		49	0	11
	190753		61358	19	9½
	96075		876	13	7
	549		49	9	6½
	2160		94208	14	8½
	684317		1095	19	11½
	908		283	3	4
	7563		94	16	7½
	83052		9048	10	9
	175016		363	5	1½
<i>Answer</i>					
6.—		7.—	£	s.	d.
From	117103810	From	1184834	13	3½
Take	56724992	Take	996259	14	9½
<i>Answer</i>					

PART II.

- Multiply 520361 by 709.
- Divide 732465071 by 53.
- Multiply 5784132 by 250038.
- Divide 27165430 by 723.
- Multiply £2503 17s. 6½d. by 8.
- Divide £16854 13s. 2d. by 11.
- Multiply £2169 15s. 6½d. by 237.
- Divide £509126 16s. 3d. by 45.
- If a number be multiplied by 28 times 39 the result is 527436. Find the number.
- The sum of forty guineas and a half has to be divided equally among 378 workmen. How much will each receive?

GEOGRAPHY.

(Time allowed, 1 hour.)

- Where are the following mountains and hills:—Snowdon; Ben Lomond; Cheviots; Scawfell; North Downs; Cader Idris.
- Name the rivers which flow into the Wash.
- Describe the position of the following:—Lundy Isle; Anglesea; Achil Island; Arran; Jersey; Isle of Wight.
- Name any three large rivers in the United Kingdom which flow westward.
- Name any two towns in the following counties, except such as have similar names to the counties:—Staffordshire; Cumberland; Antrim; Lanarkshire.

SECTION II.

ORDINARY COMPETITIONS HELD AT IRREGULAR INTERVALS.

PATENT OFFICE ASSISTANT EXAMINERSHIPS.

EXAMINATIONS for these appointments were commenced in 1878, and the following Table shows the number of vacancies filled since that date up to the end of 1886, and the number of candidates competing in each examination :—

June	1878	6 appointments	36 candidates.
January	1881	6 "	33 "
August	1881	2 "	11 "
December	1883	12 "	43 "
September	1884	12 "	45 "
December	1884	8 "	50 "
November	1885	9 "	67 "

The following is an abstract of the Regulations :—

N.B.—These Regulations are liable to alteration for future Examinations.

The limits of age for these situations are 21 and 25, and Candidates must be of the prescribed age on the first day of the Competitive Examination.

At the Competitive Examination exercises will be set in the following subjects only :—

1. Précis.
2. Geometry (Elementary and Practical).
3. Mechanical Drawing.
4. Mechanics and Mechanism.
5. Chemistry.
6. Electricity and Magnetism.
7. Hydrostatics, Hydraulics, and Pneumatics.

Candidates must pass, to the satisfaction of the Civil Service Commissioners, in one of the subjects numbered 4, 5, and 6, according to the nature of the situation vacant, *i.e.*, according as the duties to be performed render a knowledge of Mechanics and Mechanism, of Chemistry, or of Electricity and Magnetism absolutely necessary. The remaining subjects are optional.

No Candidate can be admitted to the competition who has not previously satisfied the Civil Service Commissioners that he possesses the requisite amount of proficiency in the following subjects :—

1. Handwriting.
2. Orthography.
3. Arithmetic (to Vulgar and Decimal Fractions).
4. English Composition.

With this view Preliminary Examinations in these subjects will be held at such times and places as the Commissioners may appoint.

Application for permission to attend one of these Preliminary Examinations must be made in the writing of the Candidate, at such times and in such manner as may be fixed by the Commissioners.

A fee of £5 will be required from each Candidate attending the Examination, payable as follows, viz. :—£1 for the Preliminary, and £4 for the Competitive.

The staff consists of the following—

52 Assistant Examiners . . .	£250 by £37 10s. triennially to £400.
Duty pay to 6 of the above .	£300.
3 Examiners	£420 by £20 annually to £550.
3 Superior posts.	

Tables of marks obtained by candidates, and sets of Examination Papers, have been published by the Civil Service Commissioners. The price is 1s.

INDIA OFFICE AND INDIA AUDIT OFFICE SUPERIOR CLERKSHIPS.

The vacancies in these situations have been very few recently, no examination having been held from November 1882 up to the end of 1886. In November 1882, one appointment was competed for, and a single vacancy was also offered in October in the preceding year. The following is an extract of the Regulations.

The limits of age are 18 and 22.

The subjects of examination are as follows :—

1. Handwriting and Orthography.
2. Arithmetic (including Vulgar and Decimal Fractions). N.B.—*Special importance will be attached to rapidity of working.*
3. English Composition.
4. Book-keeping.
5. The weights, measures, and currencies of the principal commercial nations of the world.
6. Geography (especially Asiatic Geography).
7. Latin (translation from and into).
8. Euclid, Books 1, 2, 3, 4, and 6.
9. Algebra, up to and including the Binomial Theorem.
10. French or German (translation from and into, and speaking).

No Candidate will be eligible who does not satisfy the Civil Service Commissioners in the first six subjects.

A set of Examination Papers will be found in the Twenty-fourth Report of the Civil Service Commissioners.

JUNIOR ASSISTANTS, SOUTH KENSINGTON MUSEUM.

Few vacancies occur in these appointments. The last examination previous to 1887 was held in February 1885 for three situations: two in the Arts Branch and one in the Science Branch. The salary commences at £95, and rises by triennial increments to £250. The following is an abstract of the Regulations.

The limits of age are 17 and 20.

Subjects of examination are as follows :—

SCIENCE BRANCH.

Preliminary.—Handwriting; Orthography; Arithmetic (including Vulgar and Decimal Fractions); Translation from Latin, French, or German into English.

No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the examination.

Competitive.—*Obligatory.*—Any two of the five following subjects: Chemistry (Inorganic), 200; Physics, including heat, light, electricity, and magnetism, 200; Zoology, 200; Botany, 200; Geology and Mineralogy, 200.

No Candidate will be eligible who does not show a competent knowledge of each of the obligatory subjects which he takes up.

Optional.—Any of the five subjects above named which a candidate has not taken up as obligatory, and any of the following:—Geography, 200; English History, 200; Copying MS. in English, French, German, and any one other language, 200.

In order to secure a proper proficiency in all the subjects taken up by a candidate, a certain number will be deducted from the marks obtained by each candidate in each subject.

ART BRANCH (age 17 to 20). Subjects:—

Preliminary.

1. Handwriting.
2. Orthography.
3. Arithmetic (including Vulgar and Decimal Fractions).
4. Translation from Latin, French, or German into English.

* * No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the examination.

Competitive.

(A.) *Obligatory.*

Freehand and Model Drawing 300

No Candidate will be eligible who does not show a competent proficiency in the obligatory subject.

(B.) Optional.

Any of the following subjects:

(a.) Geography	200
(b.) English History	200
(c.) Copying MS. in English, French, German, and any one other language	200
(d.) The Industrial Arts by William Maskell	300
(e.) Any two of the Art handbooks published for the Department of Science and Art (a list of which will be forwarded on application to the Civil Service Com- missioners)	250

In order to secure a proper proficiency in all the subjects taken up by a candidate, a certain number will be deducted from the marks obtained by each candidate in each subject.

Copies of Examination Papers set will be found in the Twenty-fourth Report of the Civil Service Commissioners.

CLERKS, METROPOLITAN POLICE COURTS.

The limits of age for these situations are 20 and 30.

The subjects of examination are:—*Obligatory.* Reading aloud; Handwriting, Orthography, Arithmetic; Copying imperfect MSS., Indexing or Docketing, Digesting Returns into Summaries; English Composition; Proceeding before Magistrates (Jervis' Acts and the Summary Jurisdiction Act, 1879); Law of Evidence (books specified); Bookkeeping by single entry. *Optional.* Latin (translation into English, and grammar); French (translation from and into, and oral examination); German (ditto); Geography, and English History. Not more than one of the optional subjects can be taken up.

Vacancies seldom occur. Salary £100—£10 (after six years' service £15)—£300; Chief Clerks, £350—£15—£500. The staff consists of 12 Clerks and 11 Chief Clerks.

Copies of Examination Papers set will be found in the Twenty-fifth Report of the Civil Service Commissioners.

ASSISTANTS IN THE NAUTICAL ALMANAC OFFICE.

The limits of age for these situations are 18 and 25. The subjects of examination are as follows.

Obligatory.—1. Handwriting and Orthography. 2. Arithmetic (including Vulgar and Decimal Fractions). 3. Algebra (including Quadratic Equations). 4. Logarithmic solution of plane and spherical triangles. 5. Astronomical Computations, including the conversion of longitude and latitude into right ascension and declination. *Optional*.—6. French (translation). 7. German (translation).

The prospects may be judged from a view of the staff employed upon the "Nautical Almanac," which is as follows:—1 Superintendent at £500, by £20 annually to £600; 1 Chief Assistant at £350, rising after three years to £400; 3 First class Assistants at £260, by £10 to £300; 7 Second class Assistants at £100, by £10 to £250.

Vacancies are rare. The only examination for some years was that held in October 1886, for one appointment.

Copies of Examination Papers will be found in the Twenty-fifth Report of the Civil Service Commissioners.

CUSTOMS OUTPORT CLERKS.

For these situations the limits of age (17—20) and subjects of examination are the same as for Men Clerkships of the Lower Division. The papers set are also in all respects similar to those set for these appointments. The prospects, as far as the scale of salary goes, are better. The prizes are no doubt fewer, but the prospect of steady and comparatively rapid advance is much better than in the Lower Division of the Civil Service.

An open Competition was held in August 1880 for 85 vacancies, but no further examination took place till April 1886, when 10 appointments were offered, 20 others being reserved for competition amongst members of the Customs Service. The tendency is to fill the appointments from within the department by offering the vacancies for competition amongst members of the Customs Service. The

salary commences at £70, rising by £5 per annum for 4 years, and then by £10 per annum to £200, with prospect of further promotion. The Tables of marks and Examination Papers set in the examination held in April 1886, have been published by the Civil Service Commissioners. The price is 1s.

HIGH COURT OF JUSTICE, IRELAND, JUNIOR CLERKS.

These situations offer perhaps the best prizes in the Civil Service, when judged by the easy character of the examination; and the competition for the few vacancies which have been offered, has accordingly been exceptionally severe.

The limits of age are 20 and 30. The subjects of examination are as follows:—Handwriting; Orthography; Arithmetic; Copying MS.; English Composition; Indexing or Docketing; English History; Geography. Candidates must satisfy the Civil Service Commissioners in the first four subjects. An examination was held in December 1883 for 2 vacancies, another in September 1885 for 3 vacancies, and a third early in 1887 for one vacancy. The salary commences at £150, and rises by £10 annually to £300.

The papers set resembled those in the same subjects for Men Clerkships of the Lower Division.

THIRD CLASS CLERKS IN THE SOLICITOR'S OFFICE, INLAND REVENUE, EDINBURGH.

The limits of age for these appointments are 18 and 24. The subjects of examination are Handwriting; Orthography; Arithmetic; Copying MS.; English Composition; Geography; Indexing or Docketing; Digesting Returns into Summaries; English History; Bookkeeping; Latin; Principles of Scotch Law (the prominent parts of the leading subjects of Bell or Erskine). Candidates must pass in the first three and last two subjects. The others are optional. Examinations are rare. The staff consists of 4 Third class Clerks at £100—£10—£240; 2 Second class Clerks at £250—£10—£320; 2 First class Clerks at £350—£15—£450; and 1 Chief Clerk at £550 to £650.

DRAUGHTSMEN, OFFICE OF WOODS.

The limits of age are 20 and 25. The subjects of examination are Handwriting; Orthography; Arithmetic (elementary); Copying MS.; Copying and tracing plans; Computing areas by scale on plans. Candidates failing in any of the subjects will not be eligible. Salary £130, rising by £5 to £180. The first examination was held in March 1886, for one appointment.

SECTION III.

SPECIAL TECHNICAL AND PROFESSIONAL EXAMINATIONS.

ASSISTANT SURVEYORS IN THE ROYAL ENGINEER
DEPARTMENT OF THE WAR OFFICE.

EXAMINATIONS are held frequently. In April 1886 a competition took place for eight appointments, with the following result :—

No. in Order of Merit.	Marks obtained.
1	2025
2	1968
3	1944
4	1892
5	1888
6	1862
7	1857
8	1835

(Maximum of marks, 2800.)

Nine appointments were offered in 1885, six in 1883, and five in 1882. The salary of an Assistant Surveyor commences at £180 per annum, and rises by increments of £10 annually to £280, with a prospect of reaching £500.

The following are the Regulations respecting the examinations :—

The limits of age for this situation are 21 and 30, and Candidates must be of the prescribed age on the first day of the examination. Persons already serving as Temporary Clerks of Works will be eligible in respect of age if their service commenced when they were under 30, if their age does not at the date of the examination exceed 40, and if their service has been continuous up to the same date.

Candidates will be required to show what preliminary training or technical education they have undergone to qualify themselves for a situation of this nature. They must have been engaged for at least three years in acquiring practical knowledge under an Architect, Builder, Civil Engineer, or Surveyor, and must show that they have profited by that training. Evidence on this point must be sent in at least a week before the examination.

The Examination will consist of two parts :—

PART I.—*Preliminary.*

1. Handwriting and Orthography.
2. English Composition, as tested by writing letters from rough notes.
3. Arithmetic (including Vulgar and Decimal Fractions).

130 SECTION III.—TECHNICAL APPOINTMENTS.

(The examination in subjects 1 and 3 will include tests of rapidity as well as of neatness and accuracy.)

. No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the examination.

PART II.—Competitive.

1. One of the following (at the option of the Candidate.)
 - (a.) Architectural Drawing.
 - (b.) Engineering Drawing.
 - (c.) Preparation of Working Drawing for details of Builders' work.
2. Theory of Construction.
3. Strength and quality of materials, and description of workmanship, tools, and plant.
4. Analysis of prices.
5. Measurement and estimate of Builders' work, including taking off quantities from Drawings and preparing the Abstracts of Bills of Quantities.

In addition to the above five subjects a Candidate may take up any of the following optional subjects:—

- A. Euclid (the first three books).
- B. Algebra, including quadratic equations.
- C. Plane Trigonometry.
- D. Geometrical Drawing and Freehand Sketches in outline.
- E. Chemistry and Mineralogy relating to Building Materials.

A fee of £5 will be required from every Candidate attending the examination, payable as follows, viz.: £1 on attending the Preliminary Examination, and £4 for the Competition.

. Candidates must be ready to serve at any station at home or abroad.

The following Table shows the marks obtained by the first candidate and the last candidate successful (No. 5) in an examination held in March 1882, and the last candidate successful (No. 8) in an examination held in April 1886.

	Architectural Drawing.	Engineering Drawing.	Preparation of Working Drawings.	Theory of Construction.	Strength, &c., of Materials and Description of Workmanship, &c.	Analysis of Prices.	Measurement and Estimate of Builders' Work, &c.	Euclid.	Algebra.	Plane Trigonometry.	Geometrical Drawing and Freehand Sketching in Outline.	Chemistry and Mineralogy.	Total.
Maximum	500	500	500	300	500	300	600	100	100	100	200	100	2800
1882.													
No. 1 .	—	—	350	82	372	224	512	47	84	44	107	52	1874
„ 5 .	300	—	—	98	264	175	500	56	55	—	83	—	1531
1886.													
No. 8 .	—	—	372	220	403	205	389	35	24	8	128	51	1835

EXAMINATION PAPERS.

The following are selections from papers which have been set:—

(b) ENGINEERING DRAWING.

Obligatory, as alternative with (a) and (c).

The enlarged details of the iron roof truss on an accompanying plate (design for covered shed) had to be drawn to $1\frac{1}{2}$ times their present scale, commencing with the iron column, and going on to the details of the head of the truss, &c.

The drawings are to be inked in, and, at least the two first mentioned, to be carefully coloured.

(c.) PREPARATION OF WORKING DRAWINGS FOR DETAILS OF BUILDERS' WORK.

Obligatory, as alternative with (a) and (b).

PART I.

1. In getting out the foundations of a four-storied building, it is considered advisable to carry the walls over a certain part, where the ground is treacherous, on a bed of concrete supported by 8-inch piles, 10 feet long. The walls above foundations are of masonry, 2 feet thick.
Give a section, to a scale of 2 feet to an inch, showing how you would propose to carry out the work.
2. Referred to an accompanying figure representing an iron roof truss over a 28-foot span, trusses 8 feet apart. Make working drawings, one-half full size, of the joints at *a* and *b*, assuming the form and dimensions of the different members.
3. Give working drawings showing all the details connected with the method of carrying the front hearth of a fireplace on an upper floor—1st, in the ordinary way; 2nd, using cement concrete, independent of the joists.
4. Give the central section, and a small portion of the elevation, one-fourth full size, of a wrought-iron plate girder to carry a wall, weighing three-quarters of a ton per foot run, over a 20-foot span. The girder not to be over 12 inches deep.
5. Give, to a scale of $\frac{1}{2}$ —1st, a section through four steps at the head of a wooden stair, suitable to a good dwelling-house, showing the method of carrying them; 2nd, a cross-section through the handrail, stair, and a 9-inch wall.

PART II.

1. A French casement window, leading from a sitting-room into the garden, is required to be weather-tight. Give sections, $\frac{1}{2}$ full size, through the frame, set in a 14-inch wall, the meeting styles, and sill.
2. A brick chimney shaft, 7 feet 6 inches long, runs up through a slate roof, parallel to the ridge, and a little below it. Show, by plan and sections, how the gutter in rear would be formed. The cross-section to include three courses of slates.

132 SECTION III.—TECHNICAL APPOINTMENTS.

3. A boiler is to be fixed to a kitchen grate to supply hot water to a bath and housemaid's closet, on the first floor. Taking an imaginary section of the house, show, by a skeleton diagram, every detail connected with the proper working of the system, naming the object of each part.
4. Give to a scale of 1 inch to a foot, a section through the panels of an internal door suitable to a first-class house; also through one jamb, showing a lath and plastered stud partition.
5. A 6-inch drain runs under a house, from back to front, to join the sewer beneath the road in front. The drain is not to be disturbed within the house. Give a detailed drawing of whatever you may consider advisable in order to render the house secure against sewer gas, with any written explanation you may think necessary.

THEORY OF CONSTRUCTION. (Obligatory.)

1. A beam AB 20 ft. long, supported at both ends, is loaded as follows: 8 cwt. at 4 ft. from end A; 12 cwt. at 8 ft. from A; 14 cwt. in centre; and 16 cwt. at 15 ft. from A. Determine the shearing stress at a point 6 ft. from A.

2. A traveller, consisting of two Memel beams, trussed with timber struts and wrought-iron ties, as in diagram which was annexed, is required to carry a load of 5 tons.

Determine the stresses on the different parts when the load is over a strut, and give the dimensions necessary to take these stresses safely.

3. A cast-iron cantilever of uniform strength and uniform breadth is required to support a uniformly distributed load. What should be its longitudinal section? Show by a figured sketch the distribution of the metal in the cross-section.
4. An ordinary slated roof, with common rafters and purlins, is supported by timber Queen-post trusses of 36 ft. span. Rise one-fourth span; 10 ft. centre to centre.

Determine (by graphic process if you can) the stresses produced on the different parts by the ordinary allowance per foot super for roof and snow.

5. A buttress of masonry weighing 140 lbs. per cubic foot, in the form of a diagram which was given, and 5 ft. uniform thickness, with a pyramidal top, has to sustain the two thrusts shown.

Is the buttress liable to overturning about either point A or B? If unstable, show how the defect could best be remedied.

STRENGTH AND QUALITY OF MATERIALS. (Obligatory.)

1. What are the distinguishing characteristics of the following bricks:—Common stocks, blue Staffordshire, malm bricks, and for what purposes are they respectively used?
2. A pier of ordinary brickwork in blue lias lime mortar, 16 ft. high, has to carry a load of 30 tons. What should be its section?
3. Write a specification to govern the supply of Portland cement for concrete work; and state what precautions you would use in storing a large quantity of it.

4. What description of stone would you employ for the following purposes:—Stable paving, internal stairs, external stairs for heavy traffic?
 5. Describe a natural and an artificial process of seasoning timber. State the object of the process, and the length of time required to fit timber for carpenters' and joiners' work respectively.
 6. Distinguish between the following classes of timber, and state the uses to which they are respectively put:—Red fir, spruce, yellow deals, American yellow pine, pitch pine.
 7. What advantage is gained by cutting and reversing the halves of a timber girder, without inserting a fitch?
 8. Write a specification for the iron tie rods of a roof, and state what tensile strain may safely be put on them.
 9. What materials are used for the different coats on an ordinary lath and plaster ceiling, and in what proportions are they mixed?
 10. What is the composition of plumbers' pot-metal, and also of a solder for brazing? State what flux would be used for soldering tin and brass respectively?
-

DESCRIPTION OF WORKMANSHIP, TOOLS, AND PLANT.

(Obligatory.)

1. In bricklayers' work what is the meaning of the term "Larrying," and how is it performed?
 2. Of what members does an ordinary builders' scaffolding consist, and how are they put together?
 3. What means are usually adopted for lifting and setting heavy stones?
 4. Describe shortly the different stages in the reduction of a roughly rectangular block of stone to the form of a groin-stone about half-way up the intersection of two vaults.
 5. What is the distinction between carpenters' and joiners' work; and what difference is there in the tools used by them?
 6. What is the essential difference between a jack-plane and a trying-plane, and how does the difference affect the work for which they are intended?
 7. For what purpose does a smith use top and bottom swages, and how?
 8. Describe the process of forming an ordinary wiped joint on a lead pipe.
 9. Mention the tools commonly used by a slater, and their respective uses.
 10. What is the meaning of "render, float, and set"? Describe the processes.
 11. Describe in order the different processes involved in painting and flattening a new deal door.
-

ANALYSIS OF PRICES. (Obligatory.)

1. Determine the cost, per rod, of $1\frac{1}{2}$ brick walling in lias mortar, built of hard stocks, faced with good red facers, neatly jointed outside and left rough on inside.
2. Work out the cost of 18 ordinary window-sills of Portland stone 4 feet \times 12 inches \times 6 inches.

3. Determine the cost of a wooden floor to a first floor room 15 feet \times 20 feet. The boards to be in batten widths, grooved and tongued, and cut out of 3-inch deals; and the joists to be 10 inches by 2½ inches, cut out of the log.
4. Determine the cost in materials and labour of re-painting 500 yards of walling, two coats common colour.
5. Estimate in detail the cost of 500 yards of lath plaster float and set, in ceilings.
6. Estimate the cost of two heel straps for the principals of a timber roof truss. The depth of strap to be 13 inches, the breadth of the tie beam being 5 inches.

MEASURING AND ESTIMATING BUILDERS' WORK, TAKING OUT QUANTITIES FROM DRAWINGS, PREPARING ABSTRACTS AND BILLS OF QUANTITIES. (Obligatory.)

1. Describe, briefly, the different methods of arriving at the probable cost of a proposed building.
2. Explain the ordinary arrangements entered into for carrying any large work into execution.
3. How are the following items of bricklayers' work usually measured up and paid for? Well sinking and steining, in ordinary ground; concrete in foundations to paving; gauged arches to openings; brickwork to coppers; setting grates; raking and pointing to lead flashings.
4. In masons' work, state how the following items are measured and paid for:—Rail holes and cramps let in with lead; common sections of curbs and window sills.
5. How are the following items measured and paid for? Plaster cornices; cement skirtings; staff bead in cement; rough cast.
6. How would the painting and glazing of circular fanlights be measured and paid for?
7. Estimate the cost of subsoil draining a field 250 yards by 150 yards, the soil being a stiffish clay. There is gentle fall across the breadth of the field.
8. Measure up and give an estimate of the cost of making a new ordinary window in a room, the outer walls of which are 14 inches brickwork. To be properly finished with a window-board, and splayed and moulded jamb-linings.

PART II.

Measure up, abstract, and make out a priced bill of quantities of all the work required to be performed in the erection of the covered shed shown on the accompanying plate. (Design for covered shed.)

ASSISTANT SURVEYORS, OFFICE OF WORKS, ENGLAND,
AND DRAUGHTSMEN IN DEPARTMENT OF DIRECTOR OF
ENGINEERING AND ARCHITECTURAL WORKS,
ADMIRALTY (OUTPORTS).

Examinations for the first-mentioned of these situations are held frequently, and the Regulations are the same as those for the situation of Draughtsman in the Department of Director of Engineering and Architectural Works in the Admiralty at the Outports. The competition has not been severe. At the examination in September 1884, for two situations as Assistant Surveyor, seven candidates competed; in August 1883, for one situation three candidates competed, and one of these failed to qualify in one or more of the prescribed subjects; and at the examination in August 1882, for four situations as Draughtsman in the Admiralty, and two as Assistant Surveyor in the Office of Works, ten candidates competed. Four appointments were competed for in February 1886, and another examination took place in the following October. The staff in the Office of Works consists of 4 Surveyors, First class, at £800 to £1000; 3 Surveyors, Second class, at £500 to £700; 5 Assistant Surveyors, First class, at £310 to £400; 5 Second class, at £210 to £300; and 10 Third class, at £100 to £200.

The following are the Regulations :—

The limits of age for these situations are 24 and 30 for the situation in the Admiralty, and 21 and 30 for the situation in the Office of Works. Candidates must be of the prescribed age on the first day of the Competitive Examination.

Candidates will be required to show what preliminary training or technical education they have undergone to qualify themselves for a situation of this nature. To be qualified for the situation in the Admiralty they must have served for at least five years, and for the situation in the Office of Works, for at least four years, in a public or private office under an Architect or Surveyor, and must show that they have profited by that training. Evidence on this point must be sent in at such times and in such manner as the Civil Service Commissioners may appoint. If it prove *prima facie* satisfactory, the Candidate will be admitted to examination, subject to such further inquiry as may be necessary.

The examination consists of two parts, and will be in the following subjects, viz. :—

Part I.—*Preliminary.*

1. Handwriting.
2. Orthography.
3. Arithmetic (including Vulgar and Decimal Fractions).

* * No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the examination.

Part II.—*Competitive.*

1. Drawings and Design of Civil Engineering and Architectural Works.
2. Details of Construction in Foundations, Masonry, Brickwork, Carpentry, Ironwork, Joinery, Plumbers' and Sanitary Work.
3. Rudimentary Calculations of Strength of Materials of Construction.
4. Measurement of Quantities in Building Works, and Estimates of Cost
5. Specifications for Building Works.
6. Modern Sanitation.
7. Practical Geometry.
8. Algebra, including Quadratic Equations.
9. Rudimentary Mechanics.
10. Use of Surveying Instruments.
11. Any one Modern Language.

Candidates must pass to the satisfaction of the Commissioners in the subjects numbered 1 to 4. Candidates for the Office of Works must also pass in the subjects numbered 5 and 6.

A fee of £3 will be required from each Candidate attending the Examination.

Notes.—The salary of a Draughtsman at the Outports, in the Department of the Director of Engineering and Architectural Works in the Admiralty, commences at £125 per annum, and rises by annual increments of £10 to £300, with a prospect of promotion, through the grades of Clerk of Works, and Assistant Civil Engineer, to that of Superintending Civil Engineer, salary £500, rising after three years to £550, with a house, or £75 a year allowance in lieu thereof.

The salary of Assistant Surveyors in the Office of Works will commence at £100, and rise by £10 annually to £200. It is the practice of the Department to fill up by promotion from the Assistants any vacancies which occur in the superior posts of a similar character, with salaries ranging from £210 to £400 a year. There is also a possibility of still further promotion. Such promotions, however, are only made, when in the opinion of the Board the Assistants have shown themselves to be in all respects duly qualified for the higher posts.

A complete set of Examination Papers will be found in the Twenty-seventh Report of the Civil Service Commissioners, to be obtained from the Queen's printers through any bookseller. Modern Sanitation was a subject added in 1886.

The following Table shows the marks obtained in each subject by the successful candidates in the Examinations held in February and October 1886.

	No. in Order of Merit.	Drawing and Design of Civil Engineering and Architectural Works.	Details of Construction in Foundation, &c.	Rudimentary Calculations of Strength of Materials of Construction.	Measurements of Quantities in Building Works, and Estimates of Cost.	Specifications for Building Works.	Practical Geometry.	Algebra, including Quadratic Equations.	Rudimentary Mechanics.	Use of Surveying Instruments.	French.	German.	Modern Sanitation.	Total.
Maximum		400	200	200	200	100	100	100	100	100	100	100		
Feb. 1886	1	380	173	181	169	80	43	54	81	83	60	—	—	1304
	2	350	171	170	158	74	50	43	71	72	—	—	—	1159
	3	260	150	154	155	67	19	20	49	54	—	—	—	928
	4	260	148	70	160	65	40	14	22	51	—	60	—	890
Oct. „	1	340	145	104	130	70	78	48	26	66	31	—	126	1164

COUNTY SURVEYORS, IRELAND.

Open competitions for these appointments have been held frequently. Two examinations were held in 1883, each for one vacancy; one was held in 1884 for three vacancies; one was held in 1885 for one vacancy; two examinations took place in 1886, each for a single appointment. An examination was held in July 1887, for two appointments as Surveyors, and two appointments as Deputy-Surveyors. The competition has averaged ten or twelve candidates to each vacancy. The limits of age are 26 and 40. The examination is in the following subjects.

PART I.

Mathematics—including Geometry, Trigonometry, Algebra, Differential and Integral Calculus, and Geometrical Optics, 100 marks.

Mechanical Philosophy—including Statics and Dynamics, Hydrostatics and Hydraulics, Pneumatics, and Heat regarded as a source of Power, 100 marks.

Experimental Science—including Inorganic Chemistry, Heat, Electricity, and Magnetism, 100 marks.

Geology and Mineralogy, 40 marks.

No Candidate will be eligible who does not show some proficiency under one at least of the heads included in Part I.

138 SECTION III.—TECHNICAL APPOINTMENTS.

PART II.

Strength and other Properties of Materials, and the Calculation of Strains, 100 marks.

- (a) Railway and Canal Engineering, 140 marks.
- (b) Marine Engineering—including Harbour, Dock, Sea, and Reclamation Works, 140 marks.
- (c) Hydraulic Engineering—including Water Supply, Sewage, and Irrigation, 140 marks.
- (d) County Works—including Architecture, Roads, Drainage, and River Works, 140 marks.

Candidates will be required to show that they have been engaged in the practice of their profession on adequate works for a sufficient time, or have had in some other way satisfactory opportunities of becoming acquainted with the practice of their profession in some one of the branches thus indicated.

The following are the marks obtained by the successful candidate in a recent examination :—

Part I.				Part II.					Total.
Mathematics.	Mechanical Philosophy.	Experimental Sciences.	Geology and Mineralogy.	Strength, &c. of Materials and Calculations of Strains.	Railway and Canal Engineering.	Marine Engineering.	Hydraulic Engineering.	County Works.	
100	100	100	40	100	140	140	140	140	1000
57	74	76	18	65	112	124	115	98	739

A set of examination papers will be found in the Twenty-second Report of the Civil Service Commissioners.

DRAUGHTSMEN IN THE HYDROGRAPHICAL DEPARTMENT OF THE ADMIRALTY.

ABSTRACT OF REGULATIONS.

The limits of age for this situation are 17 and 25, and Candidates must be of the prescribed age on the first day of the Examination.

The Examination will be in the following subjects, viz. :—

1. Handwriting and Orthography.
2. Arithmetic (including Vulgar and Decimal Fractions).
3. Geography.
4. Practical Geometry.
5. Map and Chart Projection.
6. Topographical Plan-drawing.
7. Translation from French, Spanish, or some other modern language.

Candidates must pass to the satisfaction of the Civil Service Commissioners in all the first six subjects. They will also be required to show what preliminary training or technical education they have undergone to qualify them for a situation of this nature, and they must satisfy the Commissioners that they possess the special qualifications necessary for the office. These include particularly aptness in hydrographical chart drawing, and on this point the Commissioners will ask for a report from the Hydrographer of the Admiralty.

The fee for attending the Examination is £5.

Note.—First appointments are for one year on probation at an initial salary of £120. At the expiration of the 1st year, if retained, the salary to be £150, rising by annual increments of £10 to £400. Draughtsmen are eligible for the appointment of Chief Draughtsman with £415, rising annually by £15 to £500.

An examination was held in January 1884, for one appointment.

ARCHITECTURAL DRAUGHTSMEN IN THE DEPARTMENT OF THE DIRECTOR OF ENGINEERING AND ARCHITECTURAL WORKS IN THE ADMIRALTY, AT THE HEAD OFFICE.

ABSTRACT OF REGULATIONS.

The limits of age for this situation are 26 and 32, and Candidates must be of the prescribed age on the first day of the Examination.

Candidates will be required to have served in a public or private office under an Architect for at least five years, and to show that they have profited by that training. Evidence on this point must be sent in at least a week before the date of the Examination. If it prove *prima facie* satisfactory, the Candidate will be admitted to examination, subject to such further inquiry as may be necessary.

The examination will consist of two parts, and will be in the following subjects, viz. :—

Part I.—*Preliminary.*

Handwriting.

Orthography.

Arithmetic (including Vulgar and Decimal Fractions).

* * No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the examination.

Part II.—*Competitive.*

A.

1. Practical Geometry and Perspective Drawing.
2. History and Styles of Architecture and Drawings and Design of Architectural Ornament.
3. Drawings and Design of Architectural Works and Details of Construction.
4. Architectural Water Colour Drawing.
5. Materials of Construction, their strength and uses.

B.

- a. Algebra, including Quadratic Equations, Progressions, and Logarithms.
- b. Rudimentary Mechanics.
- c. { Specifications,
Measurement of Quantities, and
Estimates of Cost of Building Works.
- d. Distribution of Stresses and Strength and Stability of simple Structures.
- e. Any one Modern Language.

Candidates must pass to the satisfaction of the Commissioners in the subjects numbered 1 to 5, and in two of the subjects from a to d. Marks may be obtained in the remaining two of these subjects and e.

A fee of £5 will be required from every Candidate attending an examination, payable as follows: £1 for the Preliminary part of the examination and £4 for the Competitive part.

The salary attached to the situation is £150 per annum, rising by annual increments of £15 to £400. The holder is eligible to be selected for the Engineering Branch of the Department, in which he may rise to the position of Superintending Civil Engineer with a salary of £550 per annum.

An examination was held in January 1885.

ENGINEERING DRAUGHTSMEN AT THE HEAD OFFICE, ADMIRALTY.

The limits of age for this situation are 26 and 32. The examination is in the following subjects:—

Part I.—*Preliminary.*

Handwriting.

Orthography.

Arithmetic (including Vulgar and Decimal Fractions).

* * * No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the examination.

Part II.—*Competitive.*

A.

- 1. Practical Geometry.
- 2. Algebra to Quadratic Equations, including Progressions and Logarithms.
- 3. Rudimentary Mechanics.
- 4. Drawings and Design of Engineering Works and details.
- 5. { Calculations of Stability and Strength of Structures; and
Calculations (Graphic) of Strains on Braced Structures.
- 6. Materials of Construction, their strength and uses.
- 7. Drawing and Design of Ironwork and Details of Construction in Ironwork.

B.

- a. { Drawings and Design of Ordinary Machinery; and
Calculations of Power and Work of Machines.
- b. Details of Construction in Hydraulic Engineering Works.
{ Specifications;
- c. { Measurement of Quantities; and
Estimates of Cost in Engineering Works.
- d. Levelling and Surveying.
- e. Any one Modern Language.

* * Candidates must pass to the satisfaction of the Commissioners in the subjects numbered 1 to 7. They must also pass in two of the subjects from *a* to *d*. Marks may be obtained in the remaining two of these subjects and *e*.

Candidates will be required to have served in a public or private office under a Civil Engineer for at least five years, and to show that they have profited by that training. Evidence on this point must be sent in at least a week before the date of the examination. If it prove *prima facie* satisfactory, the Candidate will be admitted to examination, subject to such further inquiry as may be necessary.

The vacancies occurring are very few.

JUNIOR EXAMINERS, OFFICE OF WORKS, AND ACCOUNT-
ANT CLERKS IN THE DEPARTMENT OF THE DIRECTOR
OF ENGINEERING AND ARCHITECTURAL WORKS IN
THE ADMIRALTY, AT THE HEAD OFFICE.

Abstract of Regulations.

The limits of age for this situation are 23 and 30, and Candidates must be of the prescribed age on the first day of the Competitive Examination.

Candidates will be required to show what preliminary training or technical education they have undergone to qualify themselves for a situation of this nature. They must have served in a public or private office under a Civil Engineer, Architect, Builder, or Surveyor for at least five years, and must show that they have profited by that training. Evidence on this point must be sent in at such times and in such manner as the Civil Service Commissioners may appoint. If such evidence prove *prima facie* satisfactory, the Candidate will be admitted to examination, subject, in the case of his being successful in the competition, to such further inquiry and the production of such further evidence as may be necessary.

The examination will consist of two parts, and will be in the following subjects, viz. :—

Part I.—*Preliminary.*

- 1. Handwriting.
- 2. Orthography.
- 3. Arithmetic (including Vulgar and Decimal Fractions).

* * No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the examination.

Part II.—Competitive.

1. English Composition (so far as regards the ability to write a fair business hand).
2. Squaring Dimensions, and preparation of Builders' Accounts (including abstracting and getting into bill, pricing, &c., and examination).
3. Knowledge of Materials.
4. Architectural and Engineering Drawing (so far as necessary for reading plans and understanding their details, taking out quantities or measuring work, and preparing specifications).
5. Theory and Principles of Construction.

Note.—Candidates must pass a qualifying examination in the subjects numbered 1, 2, and 4, and also in one of those numbered 3 and 5.

A fee of £3 will be required from each Candidate attending the examination, payable as follows, viz.: £1 on attending the Preliminary part of the Examination, and £2 for the Competitive part.

Examinations are held frequently, but the number of vacancies offered are few. Two appointments were offered in March 1886. An examination was held in 1885 for one appointment, and two appointments were offered in 1883 and a like number in 1884. Junior Examiners in the Office of Works commence at £150 per annum, rising to £300, and Assistant Examiners receive £315, rising to £400. The following Table shows the marks in each subject obtained by the successful candidates in the Examination held in March 1886:—

	English Composition.	Squaring Dimensions and Preparation of Accounts.	Knowledge of Materials.	Architectural and Engineering Drawing.	Theory and Principles of Construction.	Total.
Maximum	200	400	200	600	200	1600
1	173	349	124	413	185	1244
2	105	352	156	467	160	1240

EXAMINATION PAPERS.

The following are copies of papers which have been set in the competitive examinations :—

ENGLISH COMPOSITION.

1. A friend has written to you a letter asking your advice, as a business man, with regard to the investment of £200 in a safe manner. Write a letter in reply; *or*
 2. A friend has written to you a letter asking your advice as to the choice of a small house in the neighbourhood of London. Write a letter in reply, giving him information on the following points:—Neighbourhood, aspect, drainage, and design.
-

SQUARING DIMENSIONS.

Here about 100 distinct calculations had to be made.

ARCHITECTURAL DRAWING.

1. Give a vertical section, $\frac{1}{4}$ full size, through both the wood and stone sill of a window opening in a 14-inch brick wall. The stone sill to be 10 inches \times 6 inches, resting on 9-inch brickwork. The wood sill to be 6 inches \times 4 inches, the top being 2 feet 9 inches from floor line of room, with the bottom rail of a 2-inch double hung sash resting on it. The section to be continued down to the floor line, showing a framed and panelled window back.
2. Draw, to a scale of $1\frac{1}{2}$ inch to a foot, a cross-section of a 16-inch hollow brick wall, showing both glazed stoneware bonding bricks, and galvanized iron bonding ties.
3. Draw, to a scale of $1\frac{1}{2}$ inch to a foot, a section through three steps of a wooden stair, with 12-inch treads and 6-inch rise. Treads to be $1\frac{1}{2}$ inch, with moulded nosings, and 1-inch risers, rebated and grooved to treads both edges; to be glued and blocked and supported by brackets nailed to a 6-inch \times 3-inch rough string.
4. Draw, to a scale of $\frac{3}{4}$ inch to a foot, the plan of a fireplace on an upper floor, with a 3-foot opening, 1 foot 6 inches deep. The main wall to be of stone 20 inches thick, and the chimney breast of brick, with a 14-inch \times 9-inch flue running up on each side.

Part of the floor round the hearth to be drawn, showing on one side 7-inch battens and a 4-inch oak margin, and on the other the naked joists, the common joists being 9 inches \times 2 inches, and the trimmer and the trimming joists 9 inches \times 3 inches.

Draw, to the same scale, a vertical section through the centre of the fireplace, showing a brick trimmer arch; also the ceiling carried on 3-inch \times 2-inch ceiling joists.

This plan and section to be coloured.

ENGINEERING DRAWING.

1. Draw, to a scale of an inch to a foot, the central cross-section of a wrought-iron box girder 60 feet \times 5 feet \times 19 inches; flanges to consist of four $\frac{1}{2}$ -inch plates, webs of $\frac{3}{4}$ -inch plates connected to flanges by $3\frac{1}{2}$ -inch \times $3\frac{1}{2}$ -inch \times $\frac{1}{2}$ -inch angle irons; the rivets to be $\frac{1}{2}$ -inch.
2. Give a working drawing of a cast-iron pile shoe, with wrought-iron straps, for the foot of a whole timber guide pile.
3. Draw a part elevation of a stone pier for a bridge, showing irregular coursed or sneaked rubble, the quoins to be rough punched with drafted margins.
4. A floor of 7-inch \times $1\frac{1}{4}$ -inch battens, secured to 3-inch \times 2-inch fillets, is supported on Portland cement, concrete, and brick arches springing from the lower flanges of 12-inch \times 6-inch rolled iron joists, placed 7 feet apart, these being carried by cast-iron columns 6 inches external diameter at neck.

Give, to a scale of $\frac{3}{4}$ inch to a foot, a cross-section through one bay, showing the construction of the floor, including the heads of the columns below.

This drawing to be coloured.

TAKING OUT QUANTITIES FROM PLANS AND SPECIFICATIONS.

1. In taking out the quantities of carpenters' work, what constitutes the difference between "fir fixed" and "fir framed and fixed"?
- Taking an ordinary timber king-post roof, enumerate the different members under these two heads.
2. A wooden floor 28 feet \times 16 feet, consists of fir joists 10 inches \times $2\frac{1}{2}$ inches resting on ordinary wall-plates, two rows of herring-bone struts, and $1\frac{1}{4}$ -inch battens ploughed and tongued. Take out the quantities for the same.
 3. Explain how you would measure up the following:—Rubbed and gauged semicircular arches to door and window-heads; chimney shafts and ornamental caps to ditto, in brickwork; window sashes and frames; slating to roofs; iron roof trusses; down pipes and eaves gutters; painting to doors, skirtings, and iron railings.
 4. Referred to making a slated roof.
 5. Referred to construction of outer wall of a building.

ACCOUNTANT CLERKS AT THE OUTPORTS, ADMIRALTY.

ABSTRACT OF THE REGULATIONS.

The limits of age for these examinations are 22 and 25. The subjects of examination are as follows:—

Part I.—*Preliminary.*

1. Handwriting.
 2. Orthography.
 3. Arithmetic (including Vulgar and Decimal Fractions).
- * * No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the Examination.

Part II.—*Competitive.*

1. English Composition (so far as regards the ability to write a fair business letter).
2. Squaring Dimensions, abstracting quantities and bringing them into bill.
3. Architectural and Engineering Drawing (so far as necessary for reading plans and understanding their details).
4. Taking out quantities from plans and specifications.

Candidates must pass a qualifying examination in the subjects numbered 1 and 2, and in one of the subjects numbered 3 and 4. They will also be required to show what preliminary training or technical education they have undergone to qualify themselves for a situation of this nature. They must have served in a public or private office under a Civil Engineer, Architect, Builder, or Surveyor for at least two years, and must show that they have profited by that training. Evidence on this point must be sent in at such times and in such manner as the Civil Service Commissioners may appoint. If such evidence should prove *prima facie* satisfactory, the Candidate will be admitted to examination, subject, in the case of his being successful in the competition, to such further inquiry and the production of such further evidence as may be necessary.

Very few vacancies occur.

CLERKS OF WORKS, OFFICE OF WORKS.

The first examination for these appointments under the present Regulations was held in June 1886, for three vacancies, another examination being held in the following October for one vacancy, and a third in April 1887, for two vacancies. The appointments are in London and the provincial towns. The following are the Regulations:—

The limits of age for this situation are 28 and 35, and Candidates must be of the prescribed age on the first day of the Examination.

Candidates must possess the practical experience necessary to qualify them for a situation of this nature. They must have been employed for

at least five years in the superintendence of buildings, and will be required to produce satisfactory proof of their efficiency and practical knowledge.

The examination will be in the following subjects, viz. :—

1. Handwriting.
2. Orthography.
3. English Composition.
4. Arithmetic (to Vulgar and Decimal Fractions).
5. Geometrical Drawing.
6. Knowledge of Materials.
7. Designing simple buildings, with specification and estimate, and working drawings of details of carpenters' and masons' work.
8. Taking out quantities from plans, measuring and valuing buildings.
9. Modern Sanitation.

Candidates failing in any of the above subjects will not be eligible.

A fee of £2 will be required from each Candidate attending the Examination.

The salary attached to the post of a Second Class Clerk of Works is £150, rising by £5 a year to £220, in addition to which each officer is paid an annual allowance, not exceeding one-sixth of his salary, in lieu of apartments. The salary of the First Class of Clerks of Works, which is filled by promotion from the Second Class, is £250 by £5 to £300, with a residence, or the usual allowance of one-sixth of salary in lieu thereof.

The staff consists of 7 First Class and 16 Second Class Clerks.

ASSISTANT SUPERINTENDENTS OF FURNITURE, OFFICE OF WORKS.

Examinations for these appointments are not held frequently. A competition took place in August 1884, for two vacancies. The staff consists of 1 Superintendent, £400 to £600; 1 Deputy, £300 to £400; 3 Assistants, £130 to £210. The following are the Regulations :—

The Examination will consist of two parts, and will be in the following subjects, viz. :—

PART I.—*Preliminary.*

1. Handwriting.
2. Orthography.
3. Arithmetic (to Vulgar and Decimal Fractions).

Note.—Candidates will be required to show what preliminary training or technical education they have undergone to qualify themselves for a situation of this nature, and they must satisfy the Civil Service Commissioners on this point before they can be admitted to the competition.

. No Candidate who fails to show satisfactory proficiency in any of the subjects specified above will be admitted to the competitive part of the Examination.

ASSISTANT SURVEYORS OF BUILDINGS, IRELAND. 147

PART II.—*Competitive.*

1. Knowledge of furniture, fittings, &c.
(Candidates must be competent practically to superintend the supply and repairs of all articles of furniture and fittings, &c., which may possibly be required in public buildings and royal palaces.)
2. Estimating.
(They must be able to frame estimates of the probable cost of such supply and repairs.)
3. Drawing.
(They must be competent to prepare working drawings and sketches showing the design and construction of all articles of furniture, of bookcases, presses, cupboards, and other fittings.)

The competition will be decided partly by the number of marks given for answers, written or oral, to questions on the above-mentioned subjects, and partly by such testimony as the Commissioners may obtain from persons of practical experience as to the relative fitness of the Candidates.

A fee of 12s. 6d. will be required from each Candidate attending an examination.

No Candidate will be eligible whose age on the first day of the Competitive Examination is less than 25 or more than 35.

ASSISTANT SURVEYORS OF BUILDINGS, BOARD OF PUBLIC WORKS, IRELAND.

Examinations are held at irregular intervals. The staff consists of 3 Surveyors, £400 to £500, and 11 Assistant Surveyors, £200 to £300. The following is an abstract of the Regulations :—

The limits of age for this situation are 25 and 30, and Candidates must be of the prescribed age on the first day of the Examination.

Candidates must possess the practical experience necessary to qualify them for a situation of this nature. They must have been employed for at least five years in the superintendence of buildings, and will be required to produce satisfactory proof of their efficiency and practical knowledge.

The Examination will be in the following subjects, viz. :—

1. Handwriting.
2. Orthography.
3. English Composition.
4. Arithmetic (to Vulgar and Decimal Fractions).
5. Geometrical Drawing.
6. Freehand Sketching in outline.
7. Knowledge of Materials.
8. Designing simple buildings, with specification and estimate, and working drawings of details of carpenters' and masons' work.
9. Taking out quantities from plans, measuring and valuing buildings.
10. Surveying, and levelling, and valuing lands.

Candidates failing in any of the above subjects will not be eligible.

A fee in accordance with the prescribed scale will be required from each Candidate attending the Examination.

LEGAL APPOINTMENTS.

CLERKS IN SOLICITORS' OFFICES.

The following are the Regulations respecting examinations for the situation of Clerk in the Solicitor's Office of the Treasury, Post Office, Inland Revenue, or Customs Departments, or in the Office of the Examiner of Criminal Law Accounts:—

No Candidate will be eligible whose age on the first day of the Examination is less than 20 or more than 30.

No Candidate will be eligible who has not within the last five years had at least three years' experience as a Solicitor, or as an Articled Clerk, or as a Clerk who has previously served under articles in a Solicitor's Office. For the Solicitor's Office of the General Post Office, Dublin, no candidate will be eligible to compete who has not been, or is not qualified to be, admitted to practise as a solicitor in Ireland; and no candidate will be eligible for appointment until he has actually been so admitted.

The Examination will be in the following subjects, viz.:

Obligatory Subjects:—

1. Handwriting and Orthography.
2. Arithmetic (including Vulgar and Decimal Fractions).
3. English Composition.
4. Criminal Law, and Proceedings before Justices of the Peace.
5. Law of Evidence.
6. Common Law Procedure and Practice.
7. Elements of Conveyancing.

Optional Subjects:—

8. Geography.
9. English History.
10. Latin.
11. French or German.
12. Mercantile Book-keeping.
13. Equity and Practice of the Courts.
14. Bankruptcy and Practice of the Courts.

A fee of £5 will be required from every Candidate attending an Examination.

These examinations are held at irregular intervals. The salary in the Treasury and Inland Revenue commences at £150, and in the Customs and Post Office at £200. The subsequent prospects are very good; for example, in the Inland Revenue the staff consists of 1 Solicitor, £2000; 1 Assistant-Solicitor, £1000, with personal allowance £200; 4 Chief Clerks, £600 to £850 (£150 extra to one); 6 Clerk's

Assistants, £400 to £500; 7 Law Clerks, £150 to £300. In April 1882, 22 candidates competed for two vacancies, one in the Treasury Solicitor's Office and one in the Inland Revenue Solicitor's Office. In October 1883, 11 candidates competed for one vacancy in the Inland Revenue Solicitor's Office. In February 1884, 11 candidates competed for one vacancy in the same department. In March 1886, 19 candidates competed for one vacancy in the Inland Revenue Department. In March 1886, the marks of the successful candidate in each subject were as follows:—

Aithmetic.	Orthography.	Handwriting.	English Composition.	Criminal Law and Proceedings before Justices of Peace.	Law of Evidence.	Common Law Procedure and Practice.	Elements of Conveyancing.	Geography.	English History.	Latin.	Alter- native.		Mercantile Book-keeping.	Equity and Practice at the Courts.	Bankruptcy and Practice of the Courts.	Total.
100	150	150	100	300	300	300	400	100	100	100	100	100	100	400	200	2900
54	125	95	90	129	213	234	322	—	62	80	33	—	78	245	171	1931

A set of Examination Papers will be found in the Twenty-seventh Report of the Civil Service Commissioners.

EXAMINATION PAPERS.

The following are selections from papers set:—

CRIMINAL LAW AND PROCEEDINGS BEFORE JUSTICES. (Obligatory.)

(Time allowed, 3 hours.)

1. Distinguish between a "petty sessional court-house" and an "occasional court-house." Define the jurisdiction of (1) a single magistrate, (2) two or more magistrates, sitting in either.
2. What discretion have justices in awarding hard labour in addition to imprisonment where the imprisonment is imposed for non-payment of a fine?
3. What is the effect of a certificate of dismissal of an information or complaint? Within what time may it be given?

4. What are the powers of the surety over the person of a prisoner on bail?
5. In what cases may depositions taken before a magistrate be used in evidence at the trial?
6. What power has (1) a court of summary jurisdiction, (2) a superior court, over property found in the possession of a prisoner?
7. Define the term "malice" in criminal law.
8. What changes have been introduced by recent legislation in the practice of courts of summary jurisdiction on the hearing of a charge against any person responsible for the publication of a newspaper for a libel published therein?
9. Mention any cases in which the nature of an offence will depend on the number of persons engaged in it.
10. To what courts of criminal jurisdiction would the offender be amenable in the following cases?
 - (1) The homicide of an alien by an alien on board a British vessel on the high seas;
 - (2) The homicide of a British subject by an alien on board a British man-of-war in a foreign port;
 - (3) The homicide of an alien by a British subject on board a British vessel (not a man-of-war) in a foreign port;
 - (4) The homicide by a British subject of an alien in a foreign country.
11. Give reasons for your answers.

LAW OF EVIDENCE. (Obligatory.)

(Time allowed, 3 hours.)

1. Give examples showing the ways in which the due execution of a deed can be proved.
2. Upon whom does the burden of proof lie in the following cases, and why?
 - (a.) Upon the trial of A for murder it is stated that A is insane.
 - (b.) A, the holder and indorsee of a bill, sues the acceptor. The acceptor alleges that the acceptance was obtained by fraud, and that A was not a *bona fide* indorsee for value.
 - (c.) A gives B a jewel to look at; B refuses to return it after notice. A alleges that the jewel is worth £1000.
3. State and illustrate the rules regarding the rejection or admission of statements made by accused persons.
4. To what extent, if any, does coverture operate as a bar to the competency of witnesses in civil or criminal cases?
5. Define and illustrate the limit of the practice that the evidence of an accomplice needs corroboration.
6. Explain precisely the meaning of the following: "expert," "*voir dire*," "*lis mota*," "presumption," "estoppel," "admission."
7. To what extent (if any), and how, can a litigant be compelled to furnish evidence for his opponent?
8. State and illustrate any exceptions there may be to the rule that what is said in the absence of the prisoner is not evidence against him.
9. In a criminal proceeding, for what purposes and under what circumstances can evidence be given of the good or bad character of the accused and of a witness?

COMMON LAW PROCEDURE AND PRACTICE. (Obligatory.)

(Time allowed, 3 hours.)

1. Distinguish generally the jurisdiction of a Master from that of a Judge at Chambers. Under what circumstances is such Judge deemed to be a Court?
 2. State fully the proceedings that should be taken on behalf of a successful plaintiff after verdict.
 3. A trader, who is plaintiff in one action and defendant in another, becomes bankrupt while the actions are pending. What becomes of the actions respectively?
 4. Describe fully the proceedings taken on an inquiry before a magistrate (1) where the accused person is committed for trial, and (2) where the magistrate's judgment is final.
 5. State concisely any limitations to the rule that costs follow the event in an action.
 6. If one party to an action fail to comply with any interlocutory order, what should the other party do to obtain compliance? Has the Judge or Court any special powers in any particular cases?
 7. On an application for leave to plead and demur what several orders can the Judge make?
 8. The plaintiff and defendant respectively may amend their pleadings *once*, within certain times *without leave*. Are there any and what exceptions to this rule?
 9. A married woman, living apart from her husband and having a separate estate, is indebted to A for goods supplied to her. Enumerate the several steps that A should take to obtain payment out of her separate estate.
-

ELEMENTS OF CONVEYANCING. (Obligatory.)

(Time allowed, 3 hours.)

1. Define and distinguish the incidents of joint-tenancy and tenancy in common.
 2. Explain and illustrate the nature of a fee-simple conditional.
 3. By what methods may copyhold estates be mortgaged?
 4. State briefly the chief provisions in an ordinary family-settlement of real estate.
 5. Explain the origin, nature, and effect of the Rule in Shelley's Case.
 6. Enumerate the statutory powers belonging to a mortgagee of real estate.
 7. What is the effect of a limitation to a tenant for life "without impeachment of waste"?
 8. Explain the nature and incidents of a tenancy at will.
 9. Define the meaning of the following terms; customary freehold, emblements, quit-rent, house-bote.
 10. Explain the operation of the Conveyancing and Law of Property Act, 1881, as to the benefit of covenants for title and as to the custody and production of title-deeds.
-

LATIN. (Optional.)

(Time allowed, 3 hours.)

Translate into English :—

Interea Æneas socios de puppibus altis
 Pontibus exponit. Multi servare recursus
 Languentis pelagi, et brevibus se credere saltu ;
 Per remos alii. Speculatus litora Tarcho,
 Qua vada non spirant, nec fracta remurmurat unda,
 Sed mare inoffensum crescenti allabitur æstu ;
 Advertit subito proras, sociosque precatur :
 Nunc, o lecta manus, validis incumbite remis ;
 Tollite, ferte rates ; inimicam findite rostris
 Hanc terram, sulcumque sibi premat ipsa carina.
 Frangere nec tali puppim statione recuso,
 Arrepta tellure semel. Quæ talia postquam
 Effatus Tarcho, socii consurgere remis,
 Spumantesque rates arvis inferre Latinis,
 Donec rostra tenent siccum, et sedere carinæ
 Omnes innocuæ. Sed non puppis tua, Tarcho.
 Namque, inflicta vadis, dorso dum pendet iniquo,
 Anceps sustentata diu, fluctusque fatigat,
 Solvitur, atque viros mediis exponit in undis.

Translate into Latin :—

In those times there were very few roads upon which one could travel with safety. The Romans made excellent roads, extending through all parts of their empire ; but after the fall of the Roman empire their roads were neglected, and fell into decay. Then the traveller could hardly proceed without great danger, or, at least, without great fatigue. All at once your horse plunged into a marsh ; or you came to a river, and the bridge was broken down ; and, when you tried to ford the stream, your horse might get out of his depth, and then he and his rider would be nearly drowned. Sometimes the traveller had to pass through a dark forest, full of ravenous bears and wolves ; and, when he came to the end of his day's journey, instead of putting up at a comfortable inn, he was often compelled to stretch his cloak on the damp earth, in some wretched hut, or on the broken pavement of a haunted, ruined temple, open to the starless sky.

FRENCH. (Optional.)

(Time allowed, including Dictation, 2½ hours)

Translate into English :—

Approchez, prenez un siège et écoutez moi : On m'a dit qu'entre autres bonnes qualités vous aviez celle de vous attacher à vos maîtres, et que vous étiez un garçon plein d'intégrité. Ces deux choses m'ont déterminé à vous proposer d'être à moi. J'ai besoin d'un domestique affectionné qui épouse mes intérêts et mette toute son attention à conserver mon bien. Je suis riche, à la vérité, mais ma dépense va tous les ans fort au-delà de mes revenus. Eh ! pourquoi ? C'est qu'on me vole, c'est qu'on me pille. Je

suis dans ma maison comme dans un bois rempli de voleurs. Je soupçonne mon maître d'hôtel et mon intendant de s'entendre ensemble; et, si je ne me trompe pas dans mes soupçons, en voilà plus qu'il n'en faut pour me ruiner de fond en comble. Vous me direz que si je les crois fripons je n'ai qu'à les chasser. Mais où en prendre d'autres qui soient meilleurs? Je me contenterai de les faire observer l'un et l'autre par un homme qui aura droit d'inspection sur leur conduite, et c'est vous que je choisis pour remplir cette commission. Si vous vous en acquittez bien, soyez sûr que vous ne servirez pas un ingrat, j'aurai soin de vous établir avantageusement.

Translate into French:—

We put into the harbour of Mitylene and landed, as usual, at the bottom of the bay, and whilst the men were employed in watering, and the captain bargaining for cattle with the natives, the clergyman and myself took a ramble to a cave, called Homer's School, and other places, where we had been before. On the brow of Mount Ida (a hill so named) we met with and engaged a young Greek as our guide, who told us he had come from Scio with an English lord, who left the island four days previous to our arrival in his yacht.

"He engaged me as a pilot," said the Greek, "and would have taken me with him, but I did not choose to quit Mitylene, where I am likely to get married. He was an odd, but a very good man. The cottage over the hill, facing the river, belongs to him, and he has left an old man in charge of it; he gave Dominick, the wine trader, six hundred crowns for it, and has resided there about fourteen months, though not constantly; for he sails in his *felouque* very often to the different islands."

(Dictation was also given, and there was also an Oral Examination in this subject.)

SUPPLEMENTARY CLERKS IN SOLICITORS' OFFICES, INLAND REVENUE, TREASURY, &c.

The limits of age for these situations are 18 and 30. The subjects of examination are as follows:—

1. Handwriting.
2. Orthography.
3. Arithmetic (to Vulgar and Decimal Fractions).
4. English Composition.

Candidates failing in any of the above-named subjects will not be eligible.

No Candidate will be eligible who has not within the last five years served for at least two years as a clerk (not articled) in a Solicitor's Office.

The staff at the Treasury consists of five Supplementary Clerks at £100—£10 annually, to £200. All of them receive in addition duty pay in sums not exceeding £50 each. Ten

Supplementary Clerks are employed in the Inland Revenue on the same salary scale.

Examinations are not frequent.

JUNIOR CLERKS, OFFICE OF WOODS.

The prospects in these situations are very good, considering the nature of the examination. The following is an abstract of the Regulations :—

The limits of age for these situations are 20 and 30, and Candidates must be of the prescribed age on the first day of the Examination.

Candidates will be required to show what preliminary training or technical education they have undergone to qualify themselves for a situation of this nature. No Candidate will be eligible who has not had three years' experience as a Clerk in a Solicitor's Office.

The Examination will be in the following subjects, viz. :—

Obligatory Subjects.

1. Handwriting.
2. Orthography.
3. Arithmetic (to Vulgar and Decimal Fractions).
4. English Composition.
5. Précis.
6. Digesting Returns into Summaries.
7. An elementary knowledge of the law of Real Property, especially the law of Landlord and Tenant.
8. An elementary knowledge of conveyancing.

Optional Subjects.

9. Translation of Latin into English.
10. Geography of the British Isles.
11. History of England.

A fee of £6 will be required from every Candidate attending the Examination.

Junior Clerks in the Office of Woods receive salary commencing at £150, and rising by annual increments of £15 to £250, with a prospect of promotion.

The staff consists of 5 Junior Clerks, £150 to £250; 8 Assistant Clerks, £300, by £15 annually to £400; 2 Senior Clerks, £500 to £600; 2 Principal Clerks, £600 to £900. An examination for two appointments was held in October 1885.

CLERKS, GENERAL REGISTER HOUSE, EDINBURGH.

Examinations for these appointments are held frequently. The subjects are the same as those for Men Clerkships of the Lower Division with the addition of the Elements of Scotch Conveyancing in the Preliminary Examination. The following is an abstract of the Regulations:—

The limits of age for this situation are 18 and 23, and Candidates must be of the prescribed age on the first day of the Competitive Examination.

No Candidate will be eligible who has not within the last five years served for at least two years in the office of a Writer to the Signet, a Solicitor, or a Law Agent.

The Competitive Examination will be in the following subjects:—

- Handwriting.
- Orthography.
- Arithmetic.
- Copying MS. (to test accuracy).
- Indexing or Docketing.
- Digesting Returns into Summaries.
- English Composition.
- Geography.
- English History.
- Book-keeping.

Candidates will be at liberty to offer themselves for examination in any or all of these subjects. No subjects are obligatory.

No Candidate can be admitted to the competition who has not previously satisfied the Civil Service Commissioners that he possesses the requisite amount of proficiency in the following subjects:—

1. Handwriting.
2. Orthography.
3. Arithmetic (to Vulgar and Decimal Fractions).
4. Elements of conveyancing as practised in Scotland.

With this view, Preliminary Examinations in these subjects will be held at such times and places as the Commissioners may appoint.

A fee of £2 will be required from every Candidate, payable as follows, viz.: 10s. on attending the Preliminary Examination, and £1 10s. for the Competition.

Thirteen vacancies have been filled since 1881. The commencing salary is £90, rising by annual increments of £5 to £160, and then by £10 to £240, and by £15 to £350. There are Staff appointments at £550, which have been filled from these Clerkships.

The following is a copy of a paper set in Scotch Convey-

ancing. The remaining papers resembled those given for Men Clerkships of the Lower Division.

1. Describe the clauses common to most deeds. Give full definitions to warrandice.
2. What is the short registration clause and its effects? Can any deeds be registered without its insertion.
3. What is the effect of blanks in writs?
4. Define "ticket," "beneficium divisionis," "beneficium ordinis," "jus cedendarum actionum."
5. What are the clauses of the personal bond and what is the penalty and its use?
6. What personal rights cannot be transmitted? Describe the form of assignation now in use. What is "intimation"?
7. Enumerate the different discharges.
8. Explain the "act of warding," "letters of horning," "act of grace," "bond of presentation."
9. Mention the various warrants of poinding and the nature of arrestment.
10. State all you know about submission.
11. Define partnership, certificate of registry, bond of bottomry, charter party, bill of lading.
12. Trace carefully the feudal system from its origin to its introduction into Scotland. Explain some of the ancient methods of creating the feudal relation and show the progression to the modern form of conveyance.

SECTION IV.

COMPETITIONS FOR FEMALE APPOINTMENTS.

FEMALE CLERKS, GENERAL POST OFFICE.

THESE appointments are the best in the Civil Service open to women which are offered in open competition. Appointments were first made in 1881, and although there were some misgivings at the time respecting the experiment, the plan has proved very successful, and the female staff has been rapidly increased by many examinations held from that date up to the present time at the rate, on an average, of two each year. Two examinations were held in 1885—one in January for 50 appointments, and the other in October for 60 appointments. An examination was held in July 1886, for 60 appointments, 290 candidates competing for this number of vacancies, and another in April 1887, for 35 appointments.

The examination consists of two parts—the Preliminary and the Competitive, and no candidate is admitted to the Competitive part who has not passed the Preliminary Examination.

The Preliminary Examination is of a very searching nature, consisting of a Copying Exercise of the usual character set in Civil Service examinations, two Dictation exercises, a Compound Addition paper consisting of ten long addition sums to be done in half an hour, and an Arithmetic paper of thirty-nine questions to be done in three hours.

As will be seen from the specimens given, the Competitive Examination consists of four papers: English Composition, Arithmetic more advanced than that set in the Preliminary Examination, History and Geography. The time allowed for the first of these papers is one hour, for each of the others one hour and a half.

The following are the official regulations respecting open competitive examinations for the situation of Female Clerk

in the Receiver and Accountant General's Office and the Savings Bank Department of the General Post Office in London:—

Candidates will be required to satisfy the Civil Service Commissioners—

- (a) That their age on the day of the Competitive Examination is not less than 18 nor more than 20.

Note.—In reckoning age for competition, persons who have served for two full consecutive years in any Civil situation to which they were admitted with the Certificate of the Civil Service Commissioners may deduct from their actual age any time not exceeding five years which they may have spent in such service.

- (b) That they are unmarried or widows.

- (c) That they are duly qualified in respect of health and character.

The Competitive Examination will be in the following subjects, viz.:—

1. Arithmetic.
2. English Composition, with special reference to grammatical accuracy.
3. Geography.
4. English History.

* * * At this examination marks will also be given for spelling and handwriting as shown in the Exercises on the above subjects.

No Candidate can be admitted to the competition who has not previously satisfied the Commissioners that she possesses the requisite amount of proficiency in the following subjects:—

1. Handwriting.
2. Spelling.
3. Arithmetic (including Vulgar and Decimal Fractions).

A fee of 1s. will be required from every Candidate attending a Preliminary examination, and a further fee of 1s. 6d. from every candidate attending a competitive examination.

Female Clerks will be required to resign their appointments on marriage. Open Competitive Examinations are held in London, Edinburgh, Dublin, Bristol, Leeds, Aberdeen, and Belfast.

Preliminary Examinations are held in London, Edinburgh, Dublin, Liverpool, Bristol, Newcastle-on-Tyne, Leeds, Birmingham, Norwich, Plymouth, Belfast, and Aberdeen.

Female Clerks are, on the whole, well treated; the work is not hard, and it is such as any lady may perform.

The female staff in the Receiver and Accountant General's Office and Savings Bank Department is as follows:—

RECEIVER AND ACCOUNTANT-GENERAL'S OFFICE.

1 Superintendent	£190 by	£15 annually	to	£300
1 " " " " " "	£180 "	£15 "		£300
1 Assistant Superintendent at	£180			
9 Principal Clerks	£120 "	£10 "		£170
38 First Class Clerks	£85 "	£5 "		£110
228 Second Class Clerks	£65 "	£3 "		£80

SAVINGS BANK DEPARTMENT.

1 Superintendent	£180 by £15 annually to £300		
1 Assistant Superintendent . .	£180		
8 Principal Clerks	£120 by £10	„	£170
36 First Class Clerks	£85 „ £5	„	£110
229 Second Class Clerks	£65 „ £3	„	£80

The following Table shows the marks obtained by the first candidate and the last successful candidate in the Examination held in October 1885, July 1886, and April 1887.

—	Arith- metic.	Hand- writing.	Ortho- graphy.	English Com- position.	Geo- graphy.	English History.	Total.
Maximum .	200	200	200	100	150	150	1000
Oct., 1885.							
No. 1 . . .	164	145	192	78	122	102	803
No. 60 . . .	182	130	159	60	78	74	683
July, 1886.							
No. 1 . . .	200	150	177	66	100	88	781
No. 60 . . .	153	108	187	65	82	62	657
April, 1887.							
No. 1 . . .	166	163	198	98	130	78	833
No. 35 . . .	168	108	192	52	110	73	703

EXAMINATION PAPERS.

SET No. 1.

ARITHMETIC.

(Time allowed, $1\frac{1}{2}$ hours.)

- Find the value of $\frac{2}{3}$ of $\frac{2\frac{1}{2} - \frac{3}{4}}{2\frac{1}{2} + \frac{1}{4}}$ of $3\cdot49$ of $\cdot571428$ of $8s. 1d.$
- Find the greatest period of time which is a measure of 22 days 11 hours 15 min. 3 sec. and 35 days 7 hours 23 min. 39 sec.
- Divide £448 10s. among A, B, C, and D, in the proportion of the numbers 3, 5, 7, 11.
- Define Ratio. Express in its simplest form the ratio of 1 ton 12 cwt. 3 qrs. 13 lbs. to 2 tons 19 lbs.
- Find a number the square root of which exceeds the fifth power of $\cdot4$ by $\cdot015696$.
- Extract the cube root of $912\cdot673$.
- A can do a piece of work alone in 40 hours, B in 50 hours, and C in 60 hours. A and B work together for 5 hours, when C begins. Find how much longer it will take all three working together to finish it.

8. Find a fraction the third part of which shall bear the same ratio to $\frac{7}{8}$ that $\frac{1}{2}$ does to the third part of $\frac{1}{3}$.
9. By selling cloth at 8s. 9d. a yard I gain 12 per cent. What shall I gain per cent. by selling it at 12s. 6d. a yard?
10. If 69120 sovereigns are coined out of 1473 lbs. troy of gold, find the weight of a sovereign, and the mint price of gold per ounce.
11. A sum of £5 8s. is made up of half-crowns, shillings, and sixpences. There are twice as many shillings as half-crowns, and as many sixpences as shillings and half-crowns together. How many are there of each?
12. A man has an income of £1710 from the $3\frac{1}{2}$ per cents. after an income tax of 1s. in the £ is deducted. He sells out at 95 and invests in the 3 per cents. at 85 $\frac{1}{2}$. What is his new income?

SUBJECTS FOR ENGLISH COMPOSITION

(with special reference to Grammatical Accuracy).

(Time allowed, 1 hour.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style.

You may choose *either* of the following subjects:—1. Gentleness; or (2) advice to a girl leaving school on the choice of an occupation.

The Composition should fill not less than two folio pages.

GEOGRAPHY.

(Time allowed, 1 $\frac{1}{2}$ hour.)

In this Exercise attention should be paid to handwriting and spelling.

Extra marks will be given for neatness in map-drawing, but only so far as it is accompanied by accuracy.

1. Give the position of the different lake-systems of Great Britain, naming the principal lakes in each system and explaining how they are supplied and drained. Which is the largest lake in the British Isles?
2. Name in order the different independent European countries that border on the coast line from the Gulf of Bothnia to the Dardanelles. Name also the capital, with its situation, the chief river, and the most important commercial port of each State. What seas wash the shores of these States?
3. On the accompanying map of Africa draw the principal rivers and mountain chains. Add also the names of the most important capes and the chief seaports.
4. Write a short geographical description of Canada.
5. What islands border the Eastern coast of Asia from Kamchatka to Singapore? State to whom they severally belong, their capitals, and for what they are commercially important.
6. Give, as accurately as you can, the position of the following places, mentioning anything noteworthy concerning them:—Tirnova, Salonica, Strasburg, Durban, Belgrade, Peshawur, San Francisco, Chicago, Monte Video, and Demerara.

ENGLISH HISTORY.

(Time allowed, 1½ hour.)

In this Exercise attention should be paid to handwriting and spelling.

1. Mention the different occasions on which the Romans visited Britain. What traces remain of their occupation?
2. Describe briefly *in narrative form* the principal events of Henry I.'s reign.
3. What do you know of the Lollards, the Crusades, the Covenanters, the Trial of the Seven Bishops, the First Reform Bill?
4. Mention the English possessions in France at the accession of Henry VI. Compare them with (1), those of Henry II.; (2), those of Edward III. at the Peace of Bretigny.
5. Give in tabular form the *hereditary* title of William III. and George I. to the throne of England.
6. Mention the principal wars and military operations of the present reign to the year 1870, with the approximate date and the cause of each.

SET No. 2.

PRELIMINARY EXAMINATION.

COPYING.

(Time allowed, 1½ hour.)

On the form supplied, copy, in your best handwriting, as much as you can of the following in the prescribed time.

RUSSIA.—BATUM.

FOREIGN NAVIGATION.

The data relating to foreign navigation at this port during the last two years are as follows:—

ENTERED.

Nationality.	In 1882.		In 1883.	
	Number of Steamers.	Tonnage.	Number of Steamers.	Tonnage.
British	9	8,334	19	18,400
French	26	29,157	29	30,833
Austrian	50	54,801	48	45,718
Turkish	9	7,007	24	23,486
Greek	—	—	3	2,150
Russian	52	42,146	55	43,194
Total	146	141,445	178	163,781

About the same number of steamers cleared.

As to sailing vessels there entered in 1882, 101, the tonnage being 5,388, and in 1883, 108, the tonnage being 10,299. Of these, 76 were under the

Turkish flag, 17 Greek, 5 Austrian, the rest Russian, German, Swedish and Italian; but there were none under the British flag.

COASTING NAVIGATION.

The coasting navigation was as follows: In 1882 the number of steamers that entered and cleared were 439; their total tonnage 181,682; sailing vessels, 1,474, tonnage 29,480. In 1883 the number of steamers was 399, their total tonnage 191,221; sailing vessels, 1,504, total tonnage 35,357.

To account for the decrease of the number of steamers employed in the coasting navigation, it must be observed that since the opening of the trans-Caucasian railway, the regular steamship line between Poti and this port was stopped.

DICTATION.

(Time allowed, $\frac{1}{2}$ hour.)

We set out unusually early, on a fine frosty exhilarating morning, and we felt our minds, as well as our nerves, braced by the elasticity of the pure air. Our walk to the lake was delightful, or at least the difficulties were only such as diverted us, a slippery descent for instance, or a frozen ditch to cross, which made the colonel's assistance absolutely necessary. I don't think my companion liked her walk the less for these occasional embarrassments. The scene upon the lake was beautiful. One side of it is bordered by a steep crag, from which hung a thousand enormous icicles all glittering in the sun; on the other side was a little wood, now exhibiting that fantastic appearance which the pine trees present when their branches are loaded with snow. On the frozen bosom of the lake itself were a multitude of moving figures, some flitting along with the velocity of swallows, some sweeping in the most graceful circles, and others deeply interested in a less active pastime, crowding round the spot where the inhabitants of two rival parishes contended for the prize at curling,—an honour of no small importance, if we are to judge from the anxiety expressed both by the players and bystanders. We walked round the little lake, supported by the colonel, who lent us each an arm. He spoke, poor fellow, with great kindness, to old and young, and seemed deservedly popular among the assembled crowd. At length we thought of retiring. Why do I mention these trivial occurrences?—not, Heaven knows, from the interest I can now attach to them—but because, like a drowning man, who catches at a little twig, I seize every apology for delaying the subsequent and dreadful part of my narrative. But it must be communicated—I must have the sympathy of at least one friend under this heartrending calamity.

(A second piece was set.)

ARITHMETIC.

(Time allowed, 2 hours.)

(Including Vulgar and Decimal Fractions, Proportion, and Simple Interest.)

N.B.—(1.) *You are particularly recommended to answer the questions in the order in which they are set; not omitting any one unless you are unable to do it.*

(2.) *Do not lose time by copying out the questions, but refer to each question by its number.*

1. Add together $4\frac{1}{2}$, $2\frac{3}{8}$, $1\frac{1}{4}$, and $5\frac{1}{16}$.
2. Subtract $10\frac{1}{8}$ from $12\frac{1}{16}$.
3. Multiply $2\frac{1}{2}$ by $\frac{3}{4}$.
4. Divide $8\frac{1}{2}$ by $1\frac{1}{8}$.
5. Add together $\cdot 09763$, $40\cdot 76$, $\cdot 506074$, and $519\cdot 01$.
6. Subtract $54\cdot 3407$ from $342\cdot 204831$.
7. Multiply $53\cdot 04675$ by $\cdot 047062$.
8. Divide $7\cdot 371$ by $202\cdot 5$.
9. Express $\pounds 5$ 11s. $9\frac{1}{2}$ d. as the decimal of $\pounds 27$ 18s. $11\frac{1}{2}$ d.
10. In 471653 ounces, how many tons, cwt., quarters, &c.?
11. How many bottles of wine can be bought for $\pounds 26$ 2s. $3\frac{1}{2}$ d., if 15 dozen cost $\pounds 34$ 1s. 3d.?
12. Find the simple interest on $\pounds 815$ 15s. 6d. in $6\frac{1}{2}$ years at 4 per cent. per annum.
13. Add together $7\frac{1}{8}$, $10\frac{1}{16}$, and $4\frac{1}{32}$.
14. Subtract $10\frac{1}{8}$ from $22\frac{1}{16}$.
15. Multiply together $10\frac{1}{16}$, $1\frac{1}{8}$, and $\frac{1}{4}$.
16. Divide $31\frac{1}{8}$ by $\frac{1}{4}$.
17. Add together $\cdot 0075$ of a week, $\cdot 463$ of 3 days 4 hours, and $5\cdot 643$ of 1 hour 6 min., and express the answer in minutes and the decimal of a minute.
18. Subtract $3\cdot 607$ of 1 peck 1 gallon from $\cdot 095$ of 2 quarters 5 bushels, and express the answer in pints and the decimal of a pint.
19. Multiply $\cdot 0047068$ by $46\cdot 065$.
20. Divide $57\cdot 6407$ by $\cdot 57901$ to 4 places of decimals.
21. Multiply $\cdot 0495$ by $\cdot 3027$, and express the answer as a decimal.
22. Divide $\cdot 472$ by $3\cdot 629$, and express the answer correct to five places of decimals.
23. In 34796 grains (troy) how many pounds, ounces, dwts., &c.?
24. If the income-tax be raised from 7d. to 9d. in the £, a man's net income is reduced by $\pounds 6$ 1s. 8d. What is his gross income?
25. At what rate per cent. per annum will the simple interest on $\pounds 9736$ 11s. 8d. amount to $\pounds 365$ 2s. $5\frac{1}{2}$ d. in $2\frac{1}{2}$ years?
26. On what principal will the simple interest amount to $\pounds 14$ 17s. $6\frac{1}{2}$ d. in 3 years at $2\frac{1}{2}$ per cent.?

ADDITION.

(Time allowed, $\frac{1}{2}$ hour.)

N.B.—You had better occupy the whole time allowed.
No additional marks will be given for rapidity.

Do not copy out the Sums, but add them up, placing the answers in the spaces indicated.

£	s.	d.	£	s.	d.	£	s.	d.
54346	3	6	318019	3	8	541263	9	5
566984	5	4	620547	8	9	29200	7	9
65211	6	8	873	2	1	95016	18	2
817637	6	9	538097	1	2	89768	12	11
917	10	8	604873	10	9	267873	13	2
97239	2	5	86631	7	7	69263	15	4
476239	15	7	859276	3	8	314197	6	5
7624	6	2	69840	3	7	381397	7	1
90574	2	1	786178	2	4	891174	2	10
426409	12	8	209172	1	9	23297	12	5
74573	2	4	840732	9	2	476385	16	3
8797	7	7	642935	8	1	361211	6	7
741	18	2	38745	14	2	240671	13	6
22896	10	10	772	2	6	31847	1	2
358756	3	7	386541	17	3	744032	8	6
1867	4	11	61542	18	9	36197	11	7
34232	1	11	24761	18	4	631902	8	6
621140	15	6	189603	2	5	99374	5	7
19109	19	10	465983	17	11	23276	5	9

* * The paper contained seven more columns similar to these three.

COMPETITIVE EXAMINATION.

ARITHMETIC.

(Time allowed, $1\frac{1}{2}$ hour.)

1. Simplify $\frac{2\frac{1}{2} - 1\frac{1}{4}}{2\frac{1}{4} + 1\frac{1}{4}}$ of $\cdot 32657$ of $\cdot 1332$, and give the answer in the form of a vulgar fraction.
2. Find the greatest common measure of 3391938 and 3383604.
3. Add one-half of 3 tons 11 cwt. 2 qrs. 17 lbs. to one-third of 2 cwt. 23 lbs. 5 oz.
4. If I measure off a certain number of furlongs, twice as many poles, three times as many yards, four times as many feet, and obtain a total distance of 46,596 poles, what is the number of each unit taken?
5. What prime numbers divide 222222; and what is the least number that must be added to it so that the same may be divisible by 47, 53, and 59?
6. Extract the square root of $39\frac{1}{16} \times \cdot 00255025$.

7. How many yards of paper 30 inches wide would be required to paper a room 16 ft. 9 in. long, 14 ft. 3 in. wide, and 9 feet high—allowing 15 yds. deduction for doors and windows?
8. If I add 5 per cent. to a certain number and deduct 5 per cent. from the same number, I obtain two numbers which differ by 51. Find these numbers.
9. A buys an article and sells it to B, gaining 10 per cent. on the sale price; B sells it to C, gaining 10 per cent. on what he paid for it. If C paid £550, what did A give?
10. Three men are engaged on a piece of work which they could finish each working alone in 7, 8, and 9 days respectively; what part of the work will they complete in 8 hours, the working day containing 16 hours?
11. If 39 lbs. 2 oz. of gold at £3 15s. per oz. are mixed with 10 lbs. 10 ozs. of silver at 3s. 4d. per oz., what is the value of an ornament made of this alloy, the ornament weighing 10 oz. 10 dwts.? 30 shillings per oz. are to be allowed for workmanship.
12. A man derives an income of £1380 from an investment in Argentine 6 per cents, which are at 102; if he sell out and invest in Chinese 7 per cents. at 115, what sum must he further invest in the same security in order to yield a total income of £1519?

SUBJECTS FOR ENGLISH COMPOSITION

(with special reference to Grammatical Accuracy).

(Time allowed, 1 hour.)

In this Exercise attention should be paid to handwriting, spelling, punctuation, grammar, and style.

You may choose *either* of the following subjects;—(1.) A visit to a watering place; or (2), promptitude; or (3), the life of any great authoress.

The Composition should fill not less than two folio pages.

GEOGRAPHY.

(Time allowed, 1½ hour.)

In this Exercise attention should be paid to handwriting and spelling. Extra marks will be given for neatness in map-drawing, but only so far as it is accompanied by accuracy.

1. Explain the meaning of the following terms, and give one example of each :—Ocean, Bay, Gulf, Inland Sea, Lake, Lagoon, Fiord, Estuary, and Strait. What straits unite the following seas :—Baltic and North Sea, North Sea and Atlantic, Atlantic and Mediterranean, Mediterranean and Black Sea, Black Sea and Sea of Azov?
2. What rivers take their rise in the American Andes? State the countries each traverse, and the chief port, if any, at its mouth.

3. Give an example of (1) a colony, (2) a settlement, (3) a dependency. Which is the largest and which the smallest of the British Colonies? Give a short geographical description of one of our colonies.
 4. Give the names and positions of the hill ranges of Ireland, with the height of the chief mountain in each. In what part of the country are the peat bogs most common?
 5. On the accompanying map of France draw the principal rivers and mountain chains, and name the bays and promontories on the coast. Fix also the position of Paris, Metz, Belfort, Orleans, Bordeaux, Havre, and Marseilles.
 6. Where are the following places, and for what are they noteworthy:—Kiel, Copenhagen, Tunis, Messina, Cape Coast Castle, Massowah, Valparaiso, Monte Video, Goa, and Pondicherry.
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ENGLISH HISTORY.

(Time allowed, 1½ hour.)

In this Exercise attention should be paid to handwriting and spelling.

1. Connect with existing names of counties the various invasions of Britain by the Anglo-Saxon race. Give a detailed account of one of these invasions.
 2. Sketch the career of Thomas à Becket.
 3. Mention the principal battles between the English and Scotch from 1300 to 1600 A.D., with the cause, approximate date, and result of each.
 4. Give some account of Queen Elizabeth's relations with foreign countries.
 5. Describe briefly (1) the colonisation of Ulster, (2) the Darien expedition.
 6. What do you know of the South Sea Scheme—the Stamp Act—the Abolition of the Slave Trade—the East India Company?
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FEMALE SORTERS, GENERAL POST OFFICE, LONDON.

These appointments must not be confused with ordinary letter sorterships. The duties consist principally in sorting and arranging official papers relating to Savings Bank or Postal business. The hours of attendance are eight daily, between 8.30 A.M. and 5 P.M. The wages commence at 12*s.* per week, and rise by 1*s.* per week annually to 20*s.*, with prospect of promotion to higher classes.

Examinations were held in February 1885, for 60 vacancies; August 1885, for 40 vacancies; May 1886, for 10

vacancies; and January 1887, for 20 vacancies. 128 candidates competed for 40 vacancies in the Examination held in August 1885. No details are obtainable respecting the other examinations mentioned. Examinations are held at intervals of about nine months.

The following are the Regulations:—

These situations are filled by Open Competitive Examinations under the following rules, viz.:—

1. Candidates will be required to satisfy the Civil Service Commissioners—

(a) That their age on the day of the Competitive Examination is not less than 15 nor more than 18.

Note.—In reckoning age for competition, persons who have served for two full consecutive years in any Civil situation to which they were admitted with the Certificate of the Civil Service Commissioners, may deduct from their actual age any time not exceeding five years which they may have spent in such service.

(b) That they are unmarried or widows.

(c) That they are duly qualified in respect of health * and character.

2. At each Examination the number of Candidates to be selected will be such as the Postmaster-General may from time to time fix.†

3. The Examination will be in the following subjects, viz.:—

1. Reading and Copying MS.

2. Handwriting.

3. Spelling.

4. Arithmetic (first four rules, simple and compound).

5. Geography of the United Kingdom.

* * Preliminary Examinations will be held in the first four subjects, and Candidates failing in any of them will be disqualified, and will not be admitted to the Competition, which will be in all the five subjects.

4. Application for permission to attend an Examination must be made at such times and in such manner as may be fixed by the Civil Service Commissioners.

5. A fee of 1s. will be required from each Candidate attending the Examination.

Note.—Candidates are clearly to understand that Female Sorters will not be attached to any particular branch of the Post Office, London, but that their services will be available for any work that may be assigned to them in any part of the Department in London.

Female Sorters will be required to resign their appointments on marriage.

* No Candidate will be eligible for appointment who fails to satisfy the authorities of the Post Office that she is not less than 4 feet 10 inches in height without boots.

† This number is generally fixed with the view of providing for the vacancies of the ensuing six months.

EXAMINATION PAPERS.

PRELIMINARY EXAMINATION.

READING AND COPYING MANUSCRIPT.

(Time allowed, 45 minutes.)

The Paper set contained 20 addresses, and a blank space opposite to each address for the Candidate's copy.

EXERCISE IN HANDWRITING.

(Time allowed, $\frac{1}{2}$ hour.)

Copy, on the form supplied, as much of the following, including the Table of Figures, as you can in half an hour, taking care to write as well as you can.

EMIGRATION.

The following Table exhibits the excess of Emigrants over Immigrants among persons of British and Irish origin only during the eight years ending with the year 1883 :—

Country of Emigration and Immigration.	Excess of Emigrants in							
	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
United States	(—)143	603	20,654	71,758	140,052	146,323	153,435	144,870
British North America .	2,706	2,033	4,448	14,455	16,214	18,151	34,344	37,164
Australasia	29,617	25,501	32,272	35,992	18,274	16,805	30,418	64,420
All other Parts	5,885	3,168	584	4,133	5,995	9,016	6,458	(—)140
Total	38,351	31,305	57,958	126,338	180,535	190,295	224,655	246,594

From this it would appear that while the excess of emigrants to the United States in the year 1883 showed a falling off of about 9,000, namely, from 153,435 to 144,870, and the increase in the excess of emigrants to British North America was 3,000 only, namely, from 34,344 to 37,164; and while as regards all other parts, excluding Australasia, the excess of emigrants in 1882, amounting to 6,548, was converted in 1883 into a small excess of immigrants, yet the increase in the excess of emigrants to Australasia was from 30,418 in 1882 to no less a figure than 64,420 in 1883. This last figure is much the largest on record since this account has been made up, namely, since 1876, being nearly four times larger than the amount to which the excess of emigrants to Australasia fell in 1880 and 1881. Assuming that the emigration to Australasia is very largely an assisted emigration, it is evident that for some reason or other the Australasian Government during the last two years must have been devoting unusually large sums to this purpose. The falling off in the

excess of emigrants to all other parts is almost exclusively accounted for by a diminution in the number of passengers proceeding to the Cape of Good Hope.

FOR DICTATION. (1.)

(Time allowed, $\frac{1}{2}$ hour.)

The beaver has acquired a very extensive fame among mankind, the foundation of which is twofold;—first, the exceeding softness and richness of his fur, which made his skin very valuable as clothing to the native American tribes before Europeans came to the country, and which have since caused it to be still more highly valued by civilised nations all over the world; and secondly, his distinguished reputation as a builder. Both these characters of the animal result from the same cause, namely this, that he is intended to live in a very cold climate,—that is, a climate which is very cold for half the year,—and to get his living from the roots of plants growing under water, which, during the cold season, is covered with ice from one to three feet thick. To meet these exigencies, he is provided with an extremely thick and soft fur, and with certain very remarkable building instincts, by which he is enabled at all times, however cold the weather and however thick the ice, to procure access to the water. The first object of the beaver, in his engineering operations, is to keep the water deep in the stream that he inhabits, in order to prevent it from freezing to the bottom. To effect this, he forms a company, and the whole band proceed to build a dam. They gnaw down trees and bushes, and drag them into the stream at the place which they have chosen for the dam, and pack them together in a close and impenetrable mass, ten or twelve feet thick at the bottom, and diminishing gradually towards the top.

ARITHMETIC.

(First Four Rules, Simple and Compound.)

(Time allowed, 1 hour.)

You are requested to put the number to each question, and to send up the working as well as the answers.

N.B.—(1.) *You are particularly recommended to answer the questions in the order in which they are set; not omitting any one unless you are unable to do it.*

(2.) *You should occupy the whole time allowed. No extra marks will be given for completing your answers in less than the time allowed.*

1. Write down in words 58067030.

(Place the answer here.)

2. Write down in figures one hundred millions eleven thousand six hundred and twenty-nine.

(Place the answer here.)

3. Subtract £509876 13s. 7½d. from £650721 11s. 2½d.

4. Multiply 240763 by 398.

5. Divide 4897201 by 436.

6. Multiply £3925 2s. 7½d. by 10.

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7. Divide £40931 17s. 6d. by 12.
8. Multiply £130972 13s. 5½d. by 347.
9. Divide £1917502 6s. 9½d. by 451.
10. Multiply 1 week 13 hours 7 minutes by 11.

Add these up, placing the totals in the spaces indicated.

	£	s.	d.
5492	237	9	6
69840	960346	5	4
23297	32752	4	3
22896	86547	10	9
891674	187246	17	6
97239	7609	13	3
61542	9642	5	2
267873	35132	11	9
64345	23109	19	10
573702	94636	11	5
74846	391159	10	4
38745	16673	1	4
361214	29215	9	5
386541	129374	5	7
358756	274032	12	1
53812	263748	2	9
Total	Total		

Add these across, placing the Totals in the spaces indicated.

												Totals.
3693	85934	10195	43986	12190	12120	205	8345	488	2657			
38756	80631	18919	1350	19077	24293	4718	12424	8520	2502			
7485	9572	16228	2897	6259	15670	6105	3985	3535	3285			
17945	21555	36095	12788	9665	5417	2187	7501	2543	1488			

COMPETITIVE EXAMINATION.

READING AND COPYING MANUSCRIPT.

(Time allowed, ½ hour.)

The Paper set contained in all twenty addresses, and a blank space opposite to each address for the Candidate's copy.

EXERCISE IN HANDWRITING.

(Time allowed, ½ hour.)

On the form supplied, copy, in your best handwriting, as much as you can of the following in the prescribed time.

This Exercise resembled that set in the Preliminary Examination.

DICTIONARY.

(Time allowed, $\frac{1}{2}$ hour.)

It happened upon a time that there was to be a great entertainment in the castle, and a number of the Grahams were assembled. The occasion, it is said, was a marriage in the family. To prepare for this feast, much provision was got ready, and in particular a great deal of poultry had been collected. While the feast was preparing, an unhappy chance brought Donald of the Hammer to the side of the lake, returning at the head of a band of hungry followers, whom he was conducting homewards to the West Highlands, after some of his usual excursions into Stirlingshire. Seeing so much good victuals ready, and being possessed of an excellent appetite, the Western Highlanders neither asked questions, nor waited for an invitation, but devoured all the provisions that had been prepared for the Grahams, and then went on their way rejoicing.

The Grahams were filled with the highest indignation. No one in those fierce times was so contemptible as an individual who would suffer himself to be plundered without exacting satisfaction and revenge, and the loss of their dinner probably aggravated the sense of the insults entertained by the guests. The company who were assembled at the castle of Monteith, headed by the earl himself, hastily took to their boats, and, disembarking on the northern side of the lake, pursued with all speed the marauders and their leader. They came up with Donald's party in the gorge of a pass, near a rock called the Wolf's Cliff. Here the Grahams called, with loud insults, on the Highlanders to stand. The battle then began, and was continued with much fury till night. The Earl of Monteith and many of his noble kinsmen fell, while Donald, favoured by darkness, escaped with a single attendant. The Grahams obtained, from the cause of the quarrel, the nickname of Grahams of the Hens.

ARITHMETIC.

(First four rules, Simple and Compound.)

(Time allowed, $1\frac{1}{2}$ hour.)

You are requested to put the number to each question, and to send up the working as well as the answers.

N.B.—(1.) *You are particularly recommended to answer the questions in the order in which they are set; not omitting any one unless you are unable to do it.*

(2.) *You should occupy the whole time allowed. No extra marks will be given for completing your answers in less than the time allowed.*

1. Write down in words 630070045.
2. Write down in figures three hundred and sixty millions nineteen thousand two hundred and eleven.
3. Subtract eighty-two millions seven hundred and five thousand nine hundred and ninety-two from one hundred and seven millions four hundred thousand six hundred and forty.

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4. Subtract £9516309 17s. 9½d. from £10728411 11s. 7d.
5. Multiply 576314 by 96.
6. Divide 453921 by 64.
7. Multiply 429318 by 629.
8. Divide 8752619 by 387.
9. Multiply £3125 11s. 9½d. by 11.
10. Divide £5941 17s. 2d. by 8.
11. Multiply £5435 10s. 2½d. by 55.
12. Divide £621932 1s. 3d. by 30.
13. Multiply £540823 7s. 4½d. by 695.
14. Divide £285122 11s. 0½d. by 563.
15. Multiply 6 days 14 hours 5 minutes 9 seconds by 16.
16. Divide 23 weeks 5 days 21 hours 30 minutes by 40.
17. Multiply 25 yards 1 foot 11 inches by 29.
18. If 15763 be divided by a certain number the quotient is 65 and the remainder 98. Find the divisor.
19. If 109 be multiplied by a certain number it is increased by 2071. Find the multiplier.
20. I have in my purse a sum of 15s. made up of three times as many sixpences as shillings. How many of each coin have I?

ADDITION.

(Time allowed, ½ hour.)

Do not copy out the sums.

N.B.—*You had better occupy the whole time allowed. No additional marks will be given for rapidity.*

I. Add these up, placing the Totals in the spaces indicated.

879153	7867
843124	69840
23297	13686
984917	22896
891174	604873
97239	65211
87542	859276
267613	465983
64345	74573
760732	38745
240671	1211
74165	818437
189603	351
386971	738867
358756	381354
34232	541263
31847	36197
37499	298772
744032	276

Total - _____

Total - _____

£	s.	d.	£	s.	d.
310675	8	7	32752	15	3
37346	5	1	414291	4	7
197166	16	3	398136	2	6
86547	10	9	632	11	3
187246	11	3	7669	13	3
819	7	3	397940	18	2
39642	8	2	173617	6	8
403750	5	5	23369	19	10
102376	18	3	11835	7	2
67610	4	4	943159	10	11
833270	5	9	11755	6	6
16391	1	9	29374	5	7
21215	4	5	44917	17	7
687156	11	9	31140	15	6
274032	12	1	182356	1	9
34728	12	6	803611	2	6
141263	9	5	310391	8	7
612356	7	2	813214	2	6
42349	0	3	53948	2	9
Total -			Total -		

II. Add these *across*, placing the Totals in the spaces indicated.

										Totals.
3693	16228	10195	24293	12190	19077	12424	8520	2542	2657	
9572	85934	80631	1350	6259	43986	4718	205	8345	488	
7485	38756	18919	2897	12120	5417	40914	7501	3285	2543	
36567	21555	17945	3657	9665	15670	2187	3985	5212	1488	
10075	2779	36095	3503	6105	12980	22279	247	3535	2469	
31932	18090	9505	12788	21944	6771	4425	3891	8890	2957	
19425	58392	8270	9735	4525	6304	9687	7280	2074	615	
9135	17459	4275	9026	6495	5725	504	913	4869	862	
6653	7639	13218	4725	8577	19482	23473	6252	9720	2152	
17282	18215	17632	461	34209	7000	284	1689	2165	1314	

GEOGRAPHY OF THE BRITISH ISLES.

(Time allowed, 1½ hour.)

Extra marks will be given for neatly drawn maps, but only so far as they are accurate.

1. Upon the outline map (England) supplied, trace the boundaries of Northumberland, Cumberland, Westmoreland, Durham, Yorkshire, Lancashire, and show the positions of two principal towns in each; mark the courses of the Rivers Severn, Mersey, Medway, Tamar, and indicate the following towns :—Basingstoke, Taunton, Rochester, Hereford, Cowes, Conway, Nottingham, Ipswich, Derby, Folkestone.
2. State in what parts of the United Kingdom the following mountains and hill-ranges are situated :—Cotswolds, Cader Idris, Cheviots, Ben Lomond, Connemara mountains, Pennine range, Helvellyn, Mourne mountains, Lammermuir hills, Grampians.
3. Name and give the position of three islands off the coast of England, four off the coast of Scotland, and two off the coast of Ireland.
4. State, as nearly as you can, the distances between the following places, and the direction in which you would have to travel to pass from the first to the second: Edinburgh—Glasgow, Cork—Limerick, Bristol—Exeter, London—Southampton, Manchester—Liverpool, Birmingham—Chester.
5. What are the meanings of the following geographical terms :—Isthmus, watershed, estuary, plateau, river-basin, sound? Give an example of each in the United Kingdom.

FEMALE TELEGRAPH LEARNERS, GENERAL POST OFFICE, LONDON.

The examination for these appointments is similar to that for male telegraph learners. Competitions are held frequently. Examinations were held in September 1884, for 20 vacancies; February 1885, for 100 vacancies; June 1886, for 100 vacancies; and March 1887, for a large number of appointments. In that held in November 1885, it was announced that not fewer than 20 candidates would receive appointments, and 100 were eventually selected. Not fewer than 70 candidates were promised appointments in the examination held in June 1886.

The following are the Regulations :—

1. Candidates will be required to satisfy the Civil Service Commissioners—

(a) That their age on the day of the Examination is not less than 15 nor more than 18.

Note.—In reckoning age for competition, persons who have served for two full consecutive years in any Civil situation to which they were

admitted with the Certificate of the Civil Service Commissioners, may deduct from their actual age any time not exceeding five years which they may have spent in such service.

(b) That they are unmarried or widows.

(c) That they are duly qualified in respect of health and character.

2. At each Examination the number of Candidates to be selected will be such as the Postmaster-General may from time to time fix.

3. The Examination will be in the following subjects, viz. :—

1. Writing from Dictation.

2. Handwriting.

3. Arithmetic (first four rules, simple and compound).

4. Elementary Geography of the United Kingdom.

* * Candidates failing in any of the above-named subjects will not be eligible.

4. Application for permission to attend an Examination must be made at such times and in such manner as may be fixed by the Civil Service Commissioners.

5. A fee of 1s. will be required from every Candidate attending the Examination.

Note.—Female Telegraph Learners will be required to resign their appointments on marriage.

Successful Candidates have to attend the Post Office Telegraph School to undergo a course of instruction in Telegraphy, for which instruction no charge is made; but they do not receive any pay while at the School.

The course of instruction usually extends over a period of three months; but if, after a trial of one month, or at any later period of their tuition, or during their probationary employment at a Telegraph Office, it becomes evident that they display no aptitude for the duties of a Telegraphist, their nomination or probationary appointment will be cancelled.

The scale of pay is 10s. per week on receiving a certificate from the School, and commencing the period of probation, rising to 12s. on being certified to be fully capable of transmitting public messages, and rising to 14s. on being certified as being capable of taking charge of a Telegraph instrument; afterwards increasing by 1s. per week to 17s. per week, thence by 1s. 6d. per week to 27s.

Female Telegraph Learners will be liable to be called upon to do Sunday work.

Candidates are informed that, if successful in this Competition for the situation of Telegraph Learner (Female) they will be admitted to the Postal Telegraph School, on the understanding that, when competent, they will be appointed to be Telegraphists, subject to their services being discontinued at any time, and, except on the score of inability to perform their duties, or misconduct, with compensation at the rate of one month's pay for one year of service.

Should sufficient vacancies, however, occur in the force of Telegraphists not employed under the above conditions, whilst these Candidates are in the Service, they will, according to seniority, be transferred thereto, if they are reported on favourably as to conduct and ability.

The female staff at the Central Telegraph Station in London consists of the following:—

1 Matron	at £150 by £10 annually to	£250	
9 Supervisors . . .	„ £150 „ £8 „	£180	
17 Assistant Supervisors	„ £110 „ £6 „	£140	
20 „ „ „	„ £90 „ £5 „	£110	
196 First-Class Telegraphists,	28s. to 34s. per week		
474 Second „ „	10s. „ 27s. „		

EXAMINATION PAPERS.

Those set have been similar in all respects to those given for male telegraph learnerships (see p. 118).

SECTION V.

COMPETITIONS FOR INDIAN AND COLONIAL SERVICES.

THE INDIAN CIVIL SERVICE.

OPEN Competitions for appointments in this service have been held since 1858. The Examinations are held yearly in June. The competition has for some time averaged between five and six candidates to each vacancy to be filled. The appointments offered recently have been: June 1883, 40; June 1884, 38; June 1885, 41; June 1886, 38. The successful candidates reside for two years in this country to complete their studies, receiving £150 a year under the regulations given below. The initial salary in India is about £400 per annum, with a prospect of rising to £2000.

The following were the Regulations issued for the examination announced to be held in June 1887:—

1. On the 1st June, 1887, and following days, an Examination open to all qualified persons, will be held in London. Not fewer than persons will be selected, if so many shall be found duly qualified; viz., for the Lower Provinces of Bengal (including Assam); for the Upper Provinces of Bengal (including the Punjab and Oudh); for Burma; for Madras, and for Bombay.

2. No person will be deemed qualified who shall not satisfy the Civil Service Commissioners:—

(i.) That he is a natural-born subject of Her Majesty.

(ii.) That his age will be above seventeen years and under nineteen years on the 1st January, 1887. [*N.B.—In the case of Natives of India this must be certified by the Government of India, or of the Presidency or Province in which the Candidate may have resided.*]

(iii.) That he has no disease, constitutional affection, or bodily infirmity unfitting him, or likely to unfit him, for the Civil Service of India.

(iv.) That he is of good moral character.

3. Should the evidence upon the above points be *prima facie* satisfactory to the Civil Service Commissioners, the Candidate, on payment of the

prescribed fee,* will be admitted to the Examination. The Commissioners may however, in their discretion, at any time prior to the grant of the Certificate of Qualification hereinafter referred to, institute such further inquiries as they may deem necessary; and if the result of such inquiries, in the case of any Candidate, should be unsatisfactory to them in any of the above respects, he will be ineligible for admission to the Civil Service of India; and if already selected will be removed from the position of a Probationer.

4. The Examination will take place only in the following branches of knowledge:—

	Marks.
English Composition	300
History of England†—including a period selected by the Candidate	300
English Literature†—including books selected by the Candidate	300
Greek	600
Latin	800
French	500
German	500
Italian	400
Mathematics† (pure and mixed).	1,000
Natural Science; that is, the Elements of any two of the following Sciences, viz. :—	
Chemistry, 500; Electricity and Magnetism, 300; Experimental Laws of Heat and Light, 300; Mechanical Philosophy, with Outlines of Astronomy, 300.	
Logic	300
Elements of Political Economy	300
Sanskrit§	500
Arabic§	500

Candidates are at liberty to name any or all of these branches of knowledge. No subjects are obligatory.

5. The merit of the persons examined will be estimated by marks; and the number set opposite to each branch in the preceding regulation denotes the greatest number of marks that can be obtained in respect of it.

6. The marks assigned to Candidates in each branch will be subject to

* The fee (£5) will be payable by means of a special stamp according to instructions which will be communicated to Candidates.

† A considerable portion of the marks for English History and Literature will be allotted to the work selected by the Candidate. (See following notice.) In awarding marks for this, regard will be had partly to the extent and importance of the periods or books selected, but chiefly to the thoroughness with which they have been studied.

‡ The Examination will range from Arithmetic, Algebra, and Elementary Geometry, up to the elements of the differential and integral calculus, including the lower portions of applied Mathematics.

§ The standard of marking in Sanskrit and Arabic will be determined with reference to a high degree of proficiency, such as may be expected to be reached by a Native of good education.

such deduction as the Civil Service Commissioners may deem necessary,* in order to secure that "a Candidate be allowed no credit at all for taking up a subject in which he is a mere smatterer."

7. The Examination will be conducted on paper and *viva voce*, as may be deemed necessary.

8. The marks obtained by each Candidate, in respect of each of the subjects in which he shall have been examined, will be added up, and the names of the several Candidates who shall have obtained, after the deduction above mentioned, a greater aggregate number of marks than any of the remaining Candidates, will be set forth in order of merit, and such Candidates shall be deemed to be Selected Candidates for the Civil Service of India, provided they appear to be in other respects duly qualified. Should any of the Selected Candidates become disqualified, the Secretary of State for India will determine whether the vacancy thus created shall be filled up or not. In the former case, the Candidate next in order of merit, and in other respects duly qualified, shall be deemed to be a Selected Candidate. A Selected Candidate declining to accept the appointment which may be offered to him will be disqualified for any subsequent competition.

9. Selected Candidates, before proceeding to India, will be on probation for two years, during which time they will be examined periodically, with a view of testing their progress in the following subjects† :—

	Marks.
1. Law	1,250
2. Classical Languages of India—	
Sanskrit	500
Arabic	400
Persian	400
3. Vernacular Languages of India (each)	400
4. The History and Geography of India	350
5. Political Economy	350

In these Examinations, as in the open competition, the merit of the Candidates examined will be estimated by marks, and the number set opposite to each subject denotes the greatest number of marks that can be obtained in respect of it at any one Examination. The Examination will be conducted on paper and *viva voce*, as may be deemed necessary. The last of these Examinations will be held at the close of the second year of probation, and will be called the "Final Examination," at which it will be decided whether a Selected Candidate is qualified for the Civil Service of India. At this Examination Candidates will be permitted to take up any one of the following branches of Natural Science, viz. :—Agricultural Chemistry, Botany, Geology, or Zoology, for which 350 marks will be allowed.

10. Candidates will be tested during their probation as to their ability to perform journeys on horseback; and no Candidate will be deemed

* Marks assigned in English Composition and Mathematics will be subject to no deduction. Each science will, for the purpose of deduction, be treated as a separate subject.

† Full instructions as to the course of study to be pursued will be issued to the successful Candidates as soon as possible after the result of the Open Competition is declared.

qualified for the Civil Service of India who fails to satisfy the Civil Service Commissioners of his competence in this respect.

11. Any Candidate who, at any of the periodical Examinations, shall appear to have wilfully neglected his studies, or to be physically incapacitated for pursuing the prescribed course of training, will be liable to have his name removed from the list of Selected Candidates.

12. The Selected Candidates who, at the Final Examination, shall be found to have a competent knowledge of the subjects specified in Regulation 9, and who shall have satisfied the Civil Service Commissioners of their eligibility in respect of nationality, age, health, character, and ability to ride, shall be certified by the said Commissioners to be entitled to be appointed to the Civil Service of India, provided they shall comply with the regulations in force, at the time, for that Service.

13. Persons desirous to be admitted as Candidates must apply on Forms, which may be obtained from "The Secretary, Civil Service Commission, London, S.W.," at any time after the 1st December, 1886. The Forms must be returned so as to be received at the office of the Civil Service Commissioners on or before 31st March, 1887.*

The Civil Service Commissioners are authorized by the Secretary of State for India in Council to make the following announcements:—

(1.) Selected Candidates will be permitted to choose, according to the order in which they stand in the list resulting from the Open Competition, so long as a choice remains, the Presidency (and in Bengal the Division of the Presidency) to which they shall be appointed; but this choice will be subject to a different arrangement, should the Secretary of State, or the Government of India, deem it necessary.†

(2.) The Probationers, having passed the necessary Examinations, will be required to report their arrival in India within such period after the grant of their Certificate of Qualification as the Secretary of State may in each case direct.

(3.) The seniority in the Civil Service of India of the Selected Candidates shall be determined according to the order in which they stand on the list resulting from the Final Examination.

(4.) An allowance amounting to £300 will be given to all Candidates who pass their probation at one of the Universities or Colleges which have been approved by the Secretary of State, viz., the Universities of Oxford, Cambridge, Dublin, Glasgow, Edinburgh, St. Andrew's, and Aberdeen; University College, London; and King's College, London; provided such Candidates shall have passed the required Examinations to the satisfaction of the Civil Service Commissioners, and shall have complied with such rules as may be laid down for the guidance of Selected Candidates.

Candidates are not permitted to migrate from the University originally chosen by them to another University without first applying to the India

* These forms should be accompanied by evidence on the points mentioned in Regulation 2, and by a list of the subjects in which the Candidate desires to be examined. Evidence of health and character must bear date not earlier than 1st March, 1887. Applications for leave to alter or add to the list of subjects named will not be entertained unless received on or before the 4th of May.

† This choice must be exercised immediately after the result of the Open Competition is announced on such day as may be fixed by the Civil Service Commissioners.

Office for the permission, and receiving the sanction of the Secretary of State, who will not entertain such applications unless good and sufficient reasons are assigned.

(5.) Selected Candidates desiring to remain in this country an additional year after the completion of their two years' probation for the purpose of taking a degree at one of the Universities above mentioned, should apply to the Secretary of State for India for permission to do so. Besides the allowances above mentioned, a bonus of £150 will, as a temporary and experimental measure, be paid to any Candidate who, having obtained permission to remain an additional year, passes an examination qualifying for a degree in honours at Oxford or Cambridge, or, being a student of University College, London, passes with credit an Honour Examination of the University of London. This privilege will be hereafter extended to any other of the Universities above referred to, at which an academical distinction is obtainable which, in the opinion of the Secretary of State, corresponds to a degree in Honours at Oxford or Cambridge, and to obtain which the additional year's residence in this country is necessary.

(6.) All Selected Candidates will be required, after having passed the first periodical Examination, and before receiving the first instalment of their allowance, to attend at the India Office for the purpose of entering into an agreement binding themselves, amongst other things, to refund in certain cases the amount of their allowance in the event of their failing to proceed to India. A surety will be required.

(7.) After passing the Final Examination, each Candidate will be required to attend again at the India Office, with the view of entering into covenants, by which, amongst other things, they will bind themselves to agree to such Regulations for the provision of pensions for their families as may be approved by the Secretary of State for India in Council. The stamps payable on these covenants amount to £1.

(8.) Candidates rejected at the Final Examination of 1889, will in no case be allowed to present themselves for re-examination.

The Examination Papers resemble those set for clerkships, Class I., in the Home Civil Service. The following Table shows the marks obtained by the first candidate and the last candidate successful in the examination held June 1886 :—

	ENGLISH.			Greek.	Latin.	French.	German.	Italian.	Mathematics.	NATURAL SCIENCE.					Logic.	Political Economy.	Sanskrit.	Total.
	Composition.	History.	Literature.							Chemistry.	Electricity and Magnetism.	Heat and Light.	Mechanical Philosophy and Astronomy.					
Maximum	300	300	300	600	800	500	500	400	1000	500	300	300	300		300	300	500	
No. 1	215	133	144	275	563	175	—	155	278	—	—	—	—		60	99	—	2097
„ 38	127	—	118	198	420	210	—	152	249	12	—	60	—		—	—	—	1546

205 competed.

INDIA FOREST SERVICE.

The competition for these situations is not severe. In an examination for the selection of eight probationers held in June 1886, only 20 candidates competed, the eleventh candidate receiving an appointment through 3 candidates higher on the list failing to qualify in one or more of the prescribed subjects. The following are the Regulations issued for the Examination which was announced to be held in June 1887 for the selection of ten probationers.

1. An Examination will be held for the selection of probationers to undergo a special training to qualify them for admission to the Forest Service of India.

2. An applicant must be a natural-born British subject, and must be above 17 and under 21 years of age on the 1st of June, 1887. He must be unmarried, and, if he marry before leaving this country for India, he will forfeit his appointment.

3. Any person desirous of competing at this Examination must send to the Revenue Department of the India Office, on or before the first day of May 1887:—

(a.) His name and parentage, a certificate, or other satisfactory evidence, of the date of his birth, and a statement of consent from parent or guardian.

(b.) A statement of the places of education at which he may have been since he was nine years old, accompanied by testimonials of good conduct during the last two years. He must also pay a fee of 4*l.* by means of a special stamp, according to instructions which will be communicated to candidates.

4. Applicants will have to appear before a Medical Board* at the India Office, at a date to be hereafter named. Particular stress will be laid upon

* With a view to prevent parents and guardians from incurring the inconvenience and expense of preparing candidates who may be physically unfit for the Forest Service, it is suggested that candidates be submitted to examination by the medical adviser of the family, or any other qualified medical practitioner, with regard to the following points:

1. A weak constitution. 3. Impaired hearing.

2. Defective vision. 4. The existence of any congenital defect.

It is to be understood that this private examination is merely suggested to lessen the chances of disappointment, and that it is by no means intended to take the place of, or to influence in any way, the official examination.

On the subject of the standard of eyesight required for the Indian services, a pamphlet has been published, under the Authority of the Secretary of State in Council, by Messrs. J. & A. Churchill, 11, New Burlington Street.

good vision and hearing, and means will be taken to test physical powers of endurance, so as to ensure the selection of persons of active habits and sound constitution.

5. The subjects of examination, and the marks assigned thereto, are detailed in the following table:—

	Maximum.	Minimum.
(1) Orthography	300	150
(2) Handwriting	200	100
(3) English Composition	200	67
(4) Intelligence	100	—
(5) Arithmetic in all its branches	300	100
(6) Geometry, including 1st to 4th and 6th Books of Euclid.	300	100
(7) Algebra up to and including Binomial Theorem, Arithmetical and Geometrical Series, Interest and Annuities.	300	100
(8) Logarithms, including use of Tables	100	33
(9) Plane Trigonometry up to and including Solution of Plane Triangles, and Calculation of Heights and Distances	300	100
(10) Mensuration	100	33
(11) Elements of Mechanics	300	75
(12) Elements of Physics, omitting Electricity and Magnetism	300	75
(13) Inorganic Chemistry	400	133
(14) Mechanical drawing of Geometrical Figures (limited to the drawing of Plane Figures)	400	80
(15) Elements of Botany	400	100
(16) French or German { Translation	200	67
{ Oral	200	33

6. The above subjects are compulsory; but in addition thereto, the annexed marks may be obtained in the following optional subjects:—

Translation into French or German, the language being the same as that taken up under the compulsory subjects	100
Freehand Drawing	300
Elements of Geology and Mineralogy	300

7. From those competitors who attain an amount of marks not less than the minimum, and satisfy the requisite conditions in other respects, the Secretary of State will select those whom he may deem best adapted to the Service.

8. The candidates so selected will undergo a course of training extending over two years and two months. During the first twenty-two months, commencing with the annual session which begins in September 1887, they will prosecute their studies at Cooper's Hill College, where arrangements have been made for instruction in forestry and in the necessary auxiliary sciences. During the last four months the candidates will be instructed, under suitable supervision, in such English or continental forests as may be selected for the purpose. Short tours will also be made during part of the College vacations. The entire expense of the tours and of the practical instruction will be defrayed by the Secretary of State for India in Council.

9. An annual charge of 180*l.* is made for each student, which must be paid in advance to the Bank of England, in three sums of 60*l.* per term, the total charge being 360*l.* Receivable orders, with full directions as to the mode of payment, will be forwarded from the India Office, shortly before the fees fall due, to the parents or guardians of the students.

10. A deposit of 5*l.* is required to be paid by each student on admission to the College, as caution money, to cover charges incurred by him for damage to books, instruments, &c., or any College bills outstanding on leaving the College, when the balance standing at his credit will be repaid. This deposit is to be paid with the fee for the first term, making the total payment on that occasion 65*l.*

11. The College fees include all charges for tuition, board, according to the College tariff, and lodging, with washing, but not for medical attendance. Students are required to provide their own class books and drawing instruments. Drawing paper, drawing boards, and surveying instruments, are provided by the College.

12. Every student will be required to conform to the College rules, to exhibit due diligence in his studies throughout his course, and to give evidence of satisfactory progress, failing which, or in the event of serious personal misconduct, he will not be allowed to remain at the College.

13. The Rules regarding the course of study and other matters may be learnt from the College Prospectus.

14. Every student, before proceeding to India, will be required to furnish to the President satisfactory evidence of his competency in riding.

15. During the course of training, the proficiency of the students will be tested by periodical examinations, and on the termination of their studies there will be a final examination, when, in the event of the results being satisfactory, and provided the Medical Board give a favourable certificate as to health, candidates will be nominated Junior Assistant Conservators in the Forest Department in India, their seniority being regulated by the result of all the above examinations combined.

16. Within a month of his nomination as Junior Assistant, each nominee must sign articles of agreement describing the terms and conditions of his appointment; he must embark for India when required to do so by the Secretary of State, who will provide for the expenses of his passage. Failure to embark at the stated time will lead to forfeiture of appointment.

17. The pay, &c., of the Forest Service may be gathered from the following table; it must, however, be clearly understood that the allowances vary in different Presidencies, and are liable to revision.

		Rs. per mensem.
Inspector General of Forests . . .	1,700	to 2,000
Conservators of Forests	{ 1st Grade	1,500
	{ 2nd „	1,250
	{ 3rd „	1,000
Deputy Conservators of Forests . . .	{ 1st Grade	900
	{ 2nd „	800
	{ 3rd „	650
	{ 4th „	550
Assistant Conservators of Forests . . .	{ 1st Grade	450
	{ 2nd „	350
	{ 3rd „	250

18. The pay of a Junior Assistant Conservator (Rs. 250 per mensem) will commence from the date of arrival in India.

19. The young officer will be required to report himself to the Government of India (or to the Government of Bombay or Madras, in case he should be sent to one of these Presidencies) or to such Local Government as may be specified, and he will then be posted to such place as the service may require.

20. Promotion, leave, and pension will be regulated by the Rules for the time being, but an officer will not be eligible for promotion or increase of pay until he has passed an examination in such Native language as the authorities may prescribe.

The following shows the marks obtained in each subject by the first candidate and the last candidate successful in the Examination held in June 1886 :—

	I	Obligatory.																Optional.			Total.
		Arithmetic.	Compound Addition.	Orthography.	Handwriting.	Intelligence.	English Composition.	Algebra.	Geometry.	Plane Trigonometry.	Elements of Mechanics.	Elements of Physics.	Inorganic Chemistry.	Mechanical Drawing of Geometrical Figures.	Elements of Botany.	Translation from French.	French (Oral).	Translation into French.	Freehand Drawing.	Elements of Geology and Mineralogy.	
Max.		300	50	300	200	100	300	300	300	300	300	300	400	400	400	200	200	100	300	300	
Min.		100	150	100	—	87	100	100	100	75	75	133	80	100	67	33	—	—	—		
No. 1		241	21	300	130	96	88	168	204	250	192	263	319	280	255	154	158	58	210	57	
No. 11		150	6	150	110	96	78	167	144	214	138	158	199	100	160	104	72	0	255	57	

EASTERN CADETS.

CEYLON, HONG KONG, AND STRAITS SETTLEMENTS.

Examinations are held yearly in the month of August for these appointments. Four appointments were offered in 1883, 2 in 1884, 3 in 1885, and 3 in 1886.

The following are the subjects of examination :—

A. Obligatory.

a. Latin.

b. One of the following languages—Greek, French, German, Italian.

The qualifying test for *a* and *b* will be translation from the language, but marks will be given for translation into it, and, in the case of the Modern languages, for colloquial proficiency.

c. English Composition, including Précis Writing.

B. Optional.

d. Pure Mathematics, viz., Euclid, I.-IV. and VI.; Algebra, including the Binomial Theorem; Trigonometry, including the Solution of Triangles; Analytical Geometry (Elementary); and Mixed Mathematics, including Statics and Dynamics, treated without the Differential Calculus.

e. Modern Geography and Ancient and Modern History.

Candidates who take up History will be invited to name the periods which they have studied and in which they wish to be examined. In awarding marks regard will be had to the extent and importance of the period chosen, and to the thoroughness with which it has been studied.

f. The Elements of Constitutional and International Law, and Political Economy.

g. Geology, Civil Engineering, and Surveying.

h. Any two languages included under head *b* which have not been taken up as obligatory.

Every Candidate must show a competent knowledge of the Obligatory Subjects, and may select any two of the Optional Subjects.

CEYLON CADETS.

The selected Candidates are expected to leave for the Colony during the month of October following the examination.

The salary of a Cadet commences at Rupees 3,000 a year. A free passage is granted, and half salary allowed from the date of embarkation. A bond must be entered into by each Cadet, and two approved sureties with the Crown Agents for the Colonies, to secure that—in case of his dismissal, or in case he shall within four years from the date of his arrival in Ceylon either quit the Colony without leave or relinquish his appointment—he shall, if required by the Governor, repay to the Colony the cost of his passage out.

HONG KONG CADETS.

As at present arranged, a Cadet after his appointment remains for one year in this country, and is required to begin learning Chinese and to attend a class for students of Chinese at King's College or at University College; he is also employed during some hours daily at the Colonial Office in the work of the Department. At the end of his year's study in this country the Cadet is examined in Chinese, and the confirmation of his appointment depends

upon his passing a satisfactory examination, and on his performance of his duties in the Office.

Each Cadet receives salary at the rate of £100 a year while studying in this country and a salary of \$1200 a year from the date of his arrival in the Colony. The cost of his passage to the Colony will be paid, subject to the liability of repayment; and half-salary will be allowed from the date of embarkation.

STRAITS SETTLEMENTS CADETS.

The selected Candidates are expected to leave for the Colony during the month of October following the examination, unless it may be determined hereafter to retain them in this country for a year in order to study the elements of Chinese, in which case they will receive an allowance at the rate of £100 per annum.

Each Cadet receives a salary of \$1200 per annum, half-salary to commence from the day of leaving England, and full salary from the date of his arrival in the Settlements. The cost of his passage to the Colony will be paid, subject to repayment.

The following Table shows the marks obtained by the first candidate and the last candidate successful in the examination for Eastern Cadetships held in August 1886:—

	A.—OBLIGATORY.							B.—OPTIONAL.												
	Latin.	One obligatory.			English Composition.	Précis.	First Total.	Pure Mathematics.	Mixed Mathematics.	Modern Geography.	Ancient History.	Modern History.	Elements of Constitutional Law.	Elements of International Law.	Political Economy.	Any two.				Total.
		Greek.	French.	German.												Greek.	French.	German.	Italian.	
Max.	300	[300]	[300]	[300]	200	200	1000	350	350	200	200	200	200	200	200	[300]	[300]	[300]	[300]	2200
No. 1	222	—	—	250	183	156	811	275	176	—	—	—	—	—	—	—	204	—	129	1595
No. 3	225	—	208	—	128	168	729	—	—	—	—	—	165	145	149	173	—	—	179	1540

Thirty-one candidates competed.

EXAMINATION PAPERS RECENTLY SET.

LATIN. (Obligatory.)

I.

Translate into English :—

At vero ingentem quatiens Mezentius hastam
 Turbidus ingreditur campo. Quam magnus Orion,
 Cum pedes incedit medii per maxuma Nerei
 Stagna viam scindens, humero supereminet undas,
 Aut, summis referens annosam montibus ornum,
 Ingrediturque solo et caput inter nubila condit :
 Talis se vastis infert Mezentius armis.
 Huic contra Æneas, speculatus in agmine longo,
 Obvius ire parat. Manet imperterritus ille,
 Hostem magnanimum opperiens, et mole sua stat ;
 Atque oculis spatium emensus, quantum satis hastæ :
 “ Dextra mihi deus et telum, quod missile libro,
 Nunc adsint ! Voveo prædonis corpore raptis
 Indutum spoliis ipsum te, Lause, tropæum
 Æneæ.” Dixit, stridentemque eminus hastam
 Jecit ; at illa volans clipeo est excussa, proculque
 Egregium Antoren latus inter et ilia figit,
 Herculis Antoren comitem, qui missus ab Argis
 Hæserat Euandro, atque Itala consederat urbe.
 Sternitur infelix alieno vulnere, cælumque
 Aspicit, et dulcis moriens reminiscitur Argos.
 Tum pius Æneas hastam jacit ; illa per orbem
 Ære cavum triplici, per lineæ terga, tribusque
 Transiit intextum tauris opus, imaque sedit
 Inguine ; sed viris haud pertulit. Ocius ensem
 Æneas, viso Tyrrheni sanguine lætus,
 Eripit a femine, et trepidanti fervidus instat.

II.

Fuere, qui hoc die regem temeritatis, consulem segnitæ accusarent :
 nam et Philippo quiescendum fuisse, quum paucis diebus hostes, exhausto
 circa omni agro, ad ultimum inopiæ venturos sciret, et consulem, quum
 equitatum hostium levemque armaturam fudisset ac prope regem ipsum
 cepisset, protinus ad castra hostium ducere debuisset ; nec enim mansuros
 ita perculosos hostes fuisse, debellarique momento temporis potuisse. Id
 dictu quam re, ut pleraque, facilius erat. Nam si omnibus peditum
 quoque copiis congressus rox fuisset, forsitan inter tumultum, quum omnes
 victi metoque perculsi ex proelio intra vallum protinus inde supervadentem
 munimenta victorem hostem fugerent, exui castris potuerit rex ; quum
 vero integræ copiæ peditum in castris mansissent, stationes ante portas
 præsidiaque disposita essent, quid, nisi ut temeritatem regis, effuse paulo
 ante secuti perculosos equites, imitaretur, profecisset ? Neque enim ne
 regis quidem primum consilium, quo impetum in frumentatores palatos
 per agros fecit, reprehendendum foret, si modum prosperæ pugnae im-
 posuisset.

III. (Optional.)

Translate into Latin :—

Nor would it be just to omit the fondness which he showed for animals which he had taken under his protection. I never shall forget the indulgence with which he treated Hodge, his cat; for whom he himself used to go out and buy oysters, lest the servants, having that trouble, should take a dislike to the poor creature. I am unluckily one of those who have an antipathy to a cat, so that I am uneasy when in the room with one; and, I own, I frequently suffered a good deal from the presence of this same Hodge. I recollect him one day scrambling up Dr. Johnson's breast, apparently with much satisfaction, while my friend, smiling and half-whistling, rubbed down his back, and pulled him by the tail; and, when I observed he was a fine cat, saying, "Why, yes, sir, but I have had cats whom I liked better than this;" and then, as if perceiving Hodge to be out of countenance, adding, "but he is a very fine cat, a very fine cat indeed."

FRENCH. (Obligatory or optional.)

I.

Translate into English :—

Ma chambre est située sous le quarante-cinquième degré de latitude, selon les mesures du père Beccaria; sa direction est du levant au couchant; elle forme un carré long qui a trente-six pieds de tour, en rasant la muraille de bien près. Mon voyage en contiendra cependant davantage; car je la traverserai souvent en long et en large, ou bien diagonalement, sans suivre de règle ni de méthode. Je ferai même des zigzags, et je parcourrai toutes les lignes possibles en géométrie, si le besoin l'exige. Je n'aime pas les gens qui sont si forts les maîtres de leurs idées, qui disent: "Aujourd'hui, je ferai trois visites, j'écirai quatre lettres, je finirai cet ouvrage que j'ai commencé." Mon âme est tellement ouverte à toutes sortes d'idées, de goûts et de sentiments, elle reçoit si avidement tout ce qui se présente! Et pourquoi refuserait-elle les jouissances qui sont éparées sur le chemin difficile de la vie? Elles sont si rares, si clairsemées, qu'il faudrait être fou pour ne pas s'arrêter, se détourner même de son chemin pour cueillir toutes celles qui sont à notre portée. Il n'en est pas de plus attrayante selon moi, que de suivre ses idées à la piste, comme le chasseur poursuit le gibier, sans affecter de tenir aucune route. Aussi lorsque je voyage dans ma chambre, je parcours rarement une ligne droite: je vais de ma table vers un tableau qui est placé dans un coin, de là, je pars obliquement pour aller à la porte; mais quoique en partant mon intention soit bien de m'y rendre, si je rencontre mon fauteuil en chemin, je ne fais pas de façon, et je m'y arrange tout de suite.

II.

Avant d'arriver à Melun, la Seine coule, resserrée entre deux coteaux. L'un, au midi, planté de vignes, riant, verdoyant, chauffé par le soleil, reflète dans les eaux miroitantes et moirées du fleuve les blanches maisons de ses villages. L'autre au nord, couvert des premiers taillis de la forêt de Fontainebleau, est sévère, froid et un peu triste. Un pont de pierre enjambe le fleuve et relie les deux tronçons de la route qui va de Melun à Bois-le-Roi. Coupant la forêt, cette route monte tout droit vers une maison

de garde, dont le toit en tuiles rouges éclate joyeusement dans la verdure sombre des grands arbres. Elle passe le long des sauts de loup du parc de Canalheilles. Enclavé dans la forêt le château n'est séparé des taillis que par de profonds et larges fossés. Au moment de la pousse des bourgeons, les chevreuils affolés sautent dans le parc et viennent se promener sur les immenses pelouses, et jusque dans les parterres du château, dont, la nuit, ils broutent voluptueusement les roses. Bâti sous le règne de François I^{er}, par un comte de Canalheilles, le château est un admirable spécimen de l'architecture de la Renaissance. On entre dans la cour d'honneur par une porte monumentale, sur le haut de laquelle est taillé dans la pierre un cerf aux abois poursuivi par un cavalier entouré de ses chiens. Ce chef-d'œuvre, dû au ciseau de Germain Pilon, fit connaître le merveilleux sculpteur, alors âgé seulement de vingt-cinq ans, et fut le point de départ de sa fortune artistique.

III.

Translate into French :

One of Napoleon's favourite maxims was, "The truest wisdom is a resolute determination." His life, beyond most others, vividly showed what a powerful and unscrupulous will could accomplish. He threw his whole force of body and mind direct upon his work. Imbecile rulers and the nations they governed went down before him in succession. He was told that the Alps stood in the way of his armies, "There shall be no Alps," he said, and the road across the Simplon was constructed, through a district formerly almost inaccessible. "Impossible," said he, "is a word only to be found in the dictionary of fools." He was a man who toiled terribly; sometimes employing and exhausting four secretaries at a time. He spared no one, not even himself. His influence inspired other men, and put a new life into them. "I made my generals out of mud," he said. But all was of no avail; for Napoleon's intense selfishness was his ruin, and the ruin of France, which he left a prey to anarchy. His life taught the lesson that power, however energetically wielded, without beneficence, is fatal to its possessor and its subjects; and that knowledge, or knowingness, without goodness, is but the incarnate principle of evil.

PURE MATHEMATICS (1). Optional.

Euclid I.-IV. and VI., and Algebra, including the Binomial Theorem.

In the first 5 questions ordinary abbreviations may be used, but the method of proof must be geometrical.

- Any two sides of a triangle are together greater than the third side.
Prove that the semi-sum of the three sides of a triangle is greater than any one of the sides, and less than any two of them.
- The complements of the parallelograms which are about the diameter of any parallelogram are equal to one another.
If E be the common point of these parallelograms, and AC the other diameter, prove that the larger of the two remaining parallelograms exceeds the smaller by twice the triangle AEC.
- If a straight line be divided into two equal, and also into two unequal parts, the squares on the two unequal parts are together double of the square on half the line and of the square on the line between the points of section.

4. Draw a straight line from a given point, without the circumference, which shall touch a given circle.

From the centre C of a circle CA is drawn perpendicular to a given straight line AB which lies altogether outside the circle, and in AC a point P is taken such that AP is equal to the length of the tangent from A ; prove that, if Q be any point in AB , QP is equal to the length of the tangent from Q .

5. The sides about the equal angles of triangles which are equiangular to one another are proportionals; and those sides which are opposite to the equal angles are homologous.

The straight line bisecting the angle BAC of a triangle meets BC in D , and meets in E the straight line which bisects BC at right angles; prove that the rectangle contained by ED and EA is equal to the square on EB .

6. Multiply together

$$x^2 + x + 1, x^2 - x + 1, x^4 - x^2 + 1, \text{ and } x^8 - x^4 + 1.$$

Divide $x^4 + 3ax^3 + a^2x + 3a^4$ by $x^2 + 4ax + 3a^2$,

and find the value of the quotient when

$$2x = a(1 + \sqrt{-3}).$$

7. Find the highest common divisor of the expressions

$$4x^4 + 5x^3 + 8x^2 - 5x + 6 \text{ and } 5x^4 + 6x^3 + 10x^2 - 6x + 9.$$

8. Solve the equations

$$(\alpha) 12x^2 - 43x + 35 = 0.$$

$$(\beta) x^2 - 3xy = 10, xy - 4y^2 = 1.$$

9. When is one quantity said to vary directly as another.

The value of diamonds varies as the square, and of rubies as the cube of their weight: a diamond and a ruby of two carats each are of equal value; if a diamond and a ruby of three carats each are together worth £45, find the value of each.

10. Define arithmetical, geometrical, and harmonical progression.

If 2 be the first term of an arithmetic series, and 3 the common difference, find the number of terms of which 610 is the sum.

If a, b, c be in arithmetical progression, b, c, d in geometrical progression, and c, d, e in harmonical progression, prove that a, c, e are in geometrical progression.

11. If $(n)_r$ represent the number of combination of n things r together, prove that

$$(n+1)_r = (n)_r + (n)_{r-1}.$$

When n things are taken r together, prove that the number of the combinations which contain one particular thing is to the number of the combinations which do not contain it in the ratio of r to $n - r$.

12. Find, in their simplest forms, the coefficients of x^n in the expansions of $(1 - x)^{-2}$ and $(1 - x)^{-3}$.

If n be a positive integer, and if p_r be the coefficient of x^r in the expansion of $(1 - x)^{-n}$, and q_r the coefficient of x^r in the expansion of $(1 - x)^{-n-1}$; prove that

$$q_n = 2p_n, \text{ and } q_{2n} = 3p_{2n}.$$

PURE MATHEMATICS (2). (Optional.)

Another paper was set in Plane Trigonometry, including Solution of Triangles, and Elementary Analytical Geometry.]

(A paper in Mixed Mathematics followed.)

STUDENT INTERPRETERS.

TURKEY, PERSIA, AND LEVANT.

Examinations for these appointments have been held in May 1881, for 6 vacancies; May 1883, for 4 vacancies; September 1885, for 3 vacancies. The competition has been very severe. The following is an abstract of the Regulations:—

Candidates will be required to satisfy the Civil Service Commissioners—

- (a.) That they are natural-born subjects of Her Majesty. Persons not actually born within the United Kingdom, or born within the United Kingdom of parents not born therein, will only be allowed to compete by special permission of the Secretary of State.
- (b.) That their age on the first day of the Examination is not less than 18 or more than 24.
- (c.) That they are duly qualified in respect of health and character.
- (d.) That they are unmarried.

The Examination will be in the following subjects, viz. :—

Obligatory :

1. Reading aloud, Handwriting and Orthography.
2. Arithmetic (including Vulgar and Decimal Fractions).
3. English Composition.
4. French. (Translation from and into, writing from Dictation, writing a letter in French on ordinary subjects, and conversation, paying particular attention to accents, genders, and tenses).
5. Latin.

Optional :

1. Ancient Greek.
2. Italian.
3. German.
4. Spanish.

A fee of £4 will be required from every Candidate attending the examination.

Some of the candidates take up all the subjects.

The Student Interpreters, as soon as possible after their appointment, proceed to Constantinople, where they are under the orders of Her Majesty's Ambassador, and of a member of the Embassy specially appointed to superintend them. They are provided, at the public expense, with lodgings in the neighbourhood of Constantinople, and also with instruction in languages. The salary of the Student

Interpreters is fixed at the rate of £200 a year, commencing ten days previously to the date of their departure from England; and a passage to Constantinople is provided for them at the public expense. Student Interpreters are required, before leaving England, to execute a bond for the payment of £500 to Her Majesty's Government in the event of their leaving the Service of their own free will, or being discharged from it for misconduct or incompetence, within five years.

The languages which the Student Interpreters have to study are Turkish and Greek, and such of the undermentioned languages as may be considered most useful to them at the ports to which they will be appointed on being named Assistants, viz., Arabic, Persian, Armenian, Slav.

On leaving the Educational Establishment at Constantinople the Students are named Assistants, and detached for service under the Embassy at Constantinople, the Legations at Teheran, Athens, or Morocco, or in one of Her Majesty's Consulates in the East. The Assistants receive a salary of £300 a year. They are called upon, before advancing further in the Service, to pass an examination in the Civil, Criminal, and Commercial Law of Turkey, and in International Law; in the history, language, and mode of administration of the country in which they have resided; and they have to show a general knowledge of the history of the Turkish Empire, and of the Treaties which have been concluded between it and Foreign Powers.

CHINA, JAPAN, OR SIAM.

Examinations for these appointments have been held in March 1881 for 1 vacancy, June 1882 for 2 vacancies, February 1884 for 6 vacancies, December 1885 for 4 vacancies. The following is an abstract of the Regulations:—

Candidates will be required to satisfy the Civil Service Commissioners—

- (a) That they are natural-born subjects of Her Majesty. Persons not actually born within the United Kingdom, or of parents not born therein, will only be allowed to compete by special permission.
- (b) That their age on the first day of the Examination is not less than 18 or more than 24.
- (c) That they are duly qualified in respect of health and character.
- (d) That they are unmarried.

The Examination will be in the following subjects, viz. :—

Obligatory :

1. Handwriting and Orthography.
2. Arithmetic (including Vulgar and Decimal Fractions).
3. English Composition.

* * Candidates failing in any of these subjects will be informed of their failure as soon as possible, and will not proceed further with the examination.

Optional :

4. Précis.
5. Geography.
6. Euclid (Books I. to IV.).
7. Latin.
8. French.
9. German.
10. The Elements of Mercantile and Criminal Law ; the Text Book being Smith's Mercantile Law, Book II. chap. 1 and 2, Book III. chap. 1, 2, 3, 4, 7, and 9, and Book IV. chap. 1 and 2 ; and Stephen's Digest of the Criminal Law [omitting chap. 16 to 20 (inclusive) of Part IV., chap. 28 to 32 (inclusive) of Part V., and chap. 48 of Part VI.]

A fee of £4 will be required from each Candidate attending the Examination.

The salary of the Student Interpreters is fixed at the rate of £200 a year, commencing ten days previously to the date of their departure from England. A passage to their post is provided for them at the public expense, but they are required to execute a bond for the repayment of the amount of passage money in the event of resignation or discharge from the Service within five years. The successful candidates are expected to proceed to their destination as soon after their appointment as they can make arrangements for doing so.

Student Interpreters are lodged at Peking and Têkiô respectively, and provided with instruction in the language of the country at the public expense. After two years they are, if qualified, attached as Assistants to Consulates, with a salary of £300, and are thenceforward eligible for posts in the Consular service.

The climate of China being considered trying to English constitutions, the Civil Service Commissioners will take into consideration the health of the candidates with regard to the probability of its being such as to bear a residence in that country.

STUDENT INTERPRETERS, CHINA, JAPAN, OR SIAM.

EXAMINATION PAPERS.

Translate into English—

I.

Omnia potius his criminationibus, quam ipsius juvenis, irritatus est animus: quin contra, se quoque parenti causam invidiæ atque criminum esse, ægre passus, ut omnes dii hominesque scirent, se parenti opem latam, quam inimicis ejus, malle, capit consilium, rudis quidem atque agrestis animi, et quanquam non civilis exempli, tamen pietate laudabile. Inscientibus cunctis, cultro succinctus, mane in urbem, atque a porta domum confestim ad M. Pomponium tribunum pergit: janitori, opus esse sibi domino ejus convento extemplo, ait: nuntiaret, T. Manlium L. filium esse. Mox introductus, (etenim percitum ira in patrem spes erat aut criminis aliquid novi, aut consilii ad rem agendam, deferre) salutē accepta redditaque, esse, ait, quæ cum eo agere arbitris remotis velit. Procul inde omnibus abire jussis, cultrum stringit: et, super lectum stans ferro intento, nisi, in quæ ipse concepisset verba, juraret, se patris ejus accusandi causa concilium plebis nunquam habiturum, se eum extemplo transfixurum minatur. Pavidus tribunus (quippe qui ferrum ante oculos micare, se solum, inermem, et illum prævalidum juvenem, et, quod haud minus timendum erat, stolide ferocem viribus suis cerneret) adjurat, in quæ adactus est verba; et præ se deinde tulit, ea vi subactum se incepto destituisse. Nec perinde ut maluisset plebes, sibi suffragii ferendi de tam crudeli et superbo reo potestatem fieri, ita ægre habuit, filium id pro parente ausum.

II.

Talis se vastis infert Mezentius armis.
Huic contra Æneas, speculatus in agmine longo,
Obvius ire parat. Manet imperterritus ille,
Hostem magnanimum opperiens, et mole sua stat;
Atque oculis spatium emensus, quantum satis hastæ:
“Dextra mihi deus et telum, quod missile libro,
Nunc adsint; voveo prædonis corpore raptis
Indutum spoliis ipsum te, Lause, tropæum
Æneæ.” Dixit; stridentemque eminus hastam
Injicit; illa volans clipeo est excussa, proculque
Egregium Antoren latus inter et illa figit,
Herculis Antoren comitem, qui missus ab Argis
Hæserat Evandro, atque Italia consederat urbe.
Sternitur infelix alieno vulnere, cœlumque
Aspicit, et dulces moriens reminiscitur Argos.
Tum pius Æneas hastam jacit: illa per orbem
Ære cavum triplici, per lineæ terga, tribusque
Transiit intextum tauris opus, imaque sedit
Inguine; sed vires haud pertulit. Ocius ensem
Æneas, viso Tyrrheni sanguine lætus,
Eripit a femine, et trepidanti fervidus instat.
Ingemuit cari graviter genitoris amore,
Ut vidit, Lausus; lacrimæque per ora volutæ.

Translate into Latin—

After these disasters the Carthaginians were once more masters of the sea, and at the same time Hamilcar was appointed to command the troops in Sicily. The whole strength of the Romans was concentrated in the lines of Lilybæum: but they had no fleet now, and therefore the place was fully supplied from the sea. On the other hand, the activity of Hamilcar kept the enemy always in alarm. Slight actions constantly took place; and an anecdote is told by Diodorus which speaks favourably of the character of Hamilcar. In a skirmish with the Roman Consul he had suffered some loss, and sent, according to custom, to demand a truce that he might bury his dead. But the Consul insolently replied that he ought to concern himself about the living rather than the dead, and save further bloodshed by surrendering at once. Soon after it was Hamilcar's turn to defeat the Romans, and when their commander sent for leave to bury their dead, the Carthaginian general at once granted it, saying that he "warred not with the dead, but with the living."

Translate into English :—

I.

Les étoiles brillent au ciel, mais on sent déjà que l'aurore se lève. Nous montons doucement le long des falaises qui bordent l'Adriatique: il n'y a point de vent, et c'est à peine si l'on entend le bruit du flot qui vient mourir à la plage. A droite, une lueur rose et dorée semble chasser la nuit devant elle, et laisse en arrière un ciel d'un bleu pâle et de grands nuages gris qu'on prendrait pour les côtes de la Dalmatie; de temps en temps des espèces de fantômes, enveloppés d'un suaire, passent auprès de la voiture et échangent avec le voiturier un bonjour amical; ce sont des paysans de la Marche, vêtus d'une longue blouse blanche qui leur tombe jusqu'aux pieds. Ils poussent devant eux les bœufs qui traînent aux champs la charrue renversée. A côté du laboureur marche sa femme qui le suit au travail. Un vase ou une corbeille sur la tête, et filant sa quenouille tout le long du chemin, elle tire après elle un enfant attaché aux pans de sa robe. La terre est comme un jardin, toute couverte d'arbres et de fruits, et partout en aperçoit l'ouvrier. C'est l'Italie de Virgile!

Je regarde dans la voiture. En face de moi, au milieu de la banquette, est une femme vêtue de noir; elle a sur la tête un voile de laine qui lui cache entièrement la figure. Ce n'est pas une religieuse, l'usage de ces vêtements, ces manches trop courtes qui cachent mal des bras durcis par le travail, ne permettent pas de s'y tromper. Néanmoins, ce n'est pas une mendiante, car ses habits sont propres et raccommodés avec soin: rien n'y sent l'abandon ni le désordre de la misère. La voyageuse tient sur ses genoux un paquet enveloppé dans un mouchoir de coton à carreaux rouges et bleus; toute sa garde-robe, sans doute. Elle ne dort pas, car de temps en temps elle met la main dans ce mouchoir, et on entend alors comme un bruit de cailloux remués; elle en tire quelque chose que je ne vois pas, mais qu'elle porte à sa bouche et qui craque sous la dent. Que laisse-t-elle échapper? C'est une fève séchée. Pauvre femme! quelle détresse, et que n'ai-je du pain à lui offrir!

II.

Il est prouvé aujourd'hui que les aumônes savantes ont exactement le même sort que les aumônes distribuées au hasard. A ce grand art de donner que la charité inspire à leurs bienfaiteurs, les pauvres opposent un art également consommé de faire naître la compassion. Tandis qu'une voisine cache sa misère par fierté, lave son plancher à demi pourri, fait reluire sa pauvre armoire presque vide, tourne son rouet ou tire son aiguille jusqu'à ce que ses yeux pleins de larmes lui refusent leur service, la femme accoutumée à l'aumône se pavane dans ses haillons et dans sa malpropreté, demeure oisive, arrache chaque semaine un nouveau secours à la pitié de son *visiteur*, et gagne encore plus à ce triste métier que l'ouvrière courageuse et infatigable. Ces funestes habitudes se propagent de proche en proche, et finissent par envahir tous les ménages d'un même quartier. Les maris, sachant que l'argent vient d'ailleurs, dépensent davantage au cabaret et laissent leurs enfants à la charge de la charité. L'industrie elle-même est frappée. Les patrons, quand les bras manquent, ce qui n'est pas rare, proposent aux ouvriers habiles de prendre un métier de plus et de gagner par conséquent de meilleures journées; les ouvriers rangés acceptent, d'autres refusent en donnant pour prétexte que, la crise passée et l'habitude prise, ou leur laissera la nouvelle besogne en les remettant à l'ancien salaire. La raison n'est que spécieuse; ils en ont une autre qu'ils cachent, c'est qu'ils craignent d'être rayés de la liste des secours. Ils travailleraient donc pour rien en définitive? Ne vaut-il pas mieux tendre la main? Voilà la défaillance morale, la dégradation qu'engendre l'aumône.

(A piece was given for translation into French.)

Translate into English:

„Pardon!“ unterbrach der Marquis plötzlich meine Rede, „betrachten Sie einmal genau jenen Herrn dort auf der Bank in dem Gebüsch, dort links!“ „Den mit den langen schwarzen Haaren?“ „Nein, das ist ja Prati, unser größter jetzt lebender Dichter, den Sie einmal des Abends bei mir sehen werden; nein, den andern mit den vollen blonden Haaren!“ Ich fasste den mir Bezeichneten scharf in's Auge. „Das ist ja merkwürdig,“ rief ich, fast bestürzt, „das ist die täuschendste Ähnlichkeit, die mir je vorgekommen.“ „Aber mit wem?“ fragte der Marquis lächelnd. „Sie fragen? Ich glaube der M.n.ch würde in Deutschland großes Aufsehen machen, würde auf der Straße von Enthusiasten angehalten werden—das ist ja das wahre, sprechende Gesicht unseres großen Dichters! Kommen Sie, Marquis, stellen Sie mich dem M.n.ch:n vor, der sich herausnimmt, un'rem Schiller so täuschend ähnlich zu sehen!“ „Ich kenne ihn nicht, ich weiß nur, daß er Beamter in irgend einem Ministerium ist, und, den Sie nur, Berge in dem abschreckenden piemontesi'schen Dialekte schreibt. Uebrigens soll er ein talen-voller junger Mann sein.“ Zu meinem großen Erstaun:n traf ich ihn nach einigen Wochen im Cabinet des Grafen Cavour, und hatte so die ersehnte Gelegenheit, mit ihm wenigstens flüchtig bekannt zu werden. Es war niemand and'ers als Constantin Nigra, einer von Cavour's Vertrauten und später Gesandter am Hof der Tuilleries.

(Another exercise was set similar to the above, and a piece for translation into German.)

ELEMENTS OF CRIMINAL LAW.

[Stephen's Digest of the Criminal Law, omitting Chapters 16 to 20 (inclusive) of Part IV.; Chapters 28 to 32 (inclusive) of Part V.; and Chapter 48 of Part VI.]

1. Discuss shortly the various grounds upon which acts otherwise amounting to crimes may be excused.
2. Define and explain the crime of Perjury. How does it differ from that of False Swearing?
3. What is meant by cumulative punishments, and in what cases may they be inflicted?
4. Mention and discuss the cases in which the intentional infliction of death or bodily injury is not a crime.
5. A by direction of B maliciously administers to C a noxious drug, intending to annoy him. Of what offence are A and B respectively guilty (1) in the event of C's death resulting, (2) in the event of C becoming dangerously ill, but recovering?
6. Can a married woman be convicted of theft of her husband's goods?
7. Describe "embezzlement," showing clearly how it differs from other kinds of theft.
8. What is the law as to causing the death of another by omission?
9. Define "burglary," "forgery," and "riot."
10. Describe shortly the present state of the law as to conspiracies in restraint of trade.

APPENDIX.

APPOINTMENTS FOR WHICH A NOMINATION IS REQUIRED.

For a considerable number of appointments under Government a nomination is still required before the candidate is allowed to proceed to examination. There is also a smaller class of appointments for which a nomination is the only evidence of fitness required by the Civil Service Commissioners.

To give details respecting all these appointments on the plan which has been followed in the previous pages with respect to the open competitions, would unduly extend the limits of this book, and we may deal fully with the subject elsewhere. The following particulars respecting the principal offices for which a nomination is required will, it is hoped, prove useful.

Appointments for which a nomination is required may be divided into three classes :—

- (I.) Appointments where nomination is followed by limited competition. Several candidates may be nominated for each vacancy, and these compete amongst themselves for the situations offered.
- (II.) Appointments where nomination is followed by a qualifying examination. Only one candidate is nominated for a place, and the appointment is made after a qualifying examination has been passed.
- (III.) Appointments where nomination is followed by examination test.

The following particulars will, it is believed, be found to be correct, but it is not possible to guarantee their accuracy.

NOMINATIONS FOLLOWED BY LIMITED COMPETITION.

Name of Situation.	Limits of Age.	Authority with whom Nomination rests.
Attachés, Foreign Office	20-26	Foreign Secretary.
Assistants, British Museum	18-30	Trustees.
Naval Cadets	12-13½	First Lord.
Royal Irish Constabulary Cadets	21-26	Lord Lieutenant.
Inspectors National Schools (Ireland)	21-34	Commissioners.
„ „ „ Assistants to	23-30	
Clerks, Foreign Office	18-24	Foreign Secretary.
„ House of Commons	19-25	Speaker, Clerk of House.
„ Duchy of Lancaster	18-25	Chancellor.
„ (Assistant) Royal Navy	15-17	First Lord.
„ Prisons (England)	20-30	Home Secretary.
„ Irish Land Commission	17-25	Commissioners.

NOMINATIONS FOLLOWED BY A QUALIFYING EXAMINATION.

Name of Situation.	Limits of Age.	Authority with whom Nomination rests.
Clerks, House of Lords	{ 20-30 18-25 25-45 }	{ Lord Chancellor and Heads of Departments.
„ High Court of Justice (England)	20-30	Lord Chancellor, Judges.
„ „ „ (Ireland)	18-30	Presidents of Divisions.
„ High Court of Justiciary (Scotland)	25-35	Principal Clerk.
„ Metropolitan Police, Com- missioners' Offices	{ 18-25 18-36 }	Home Secretary.
„ Metropolitan Police Courts	20-30	
„ Bankruptcy Court (Scotland)	17-26	Lord Advocate.
„ Broadmoor Criminal Lunatic Asylum	17-40	Home Secretary.
„ Dundrum Criminal Lunatic Asylum	18-25	Lord Lieutenant.
„ Chancery, Office of Director (Scotland)	18-30	{ Registrar-General (Scot- land).
„ Collector-General of Rates Office (Dublin)	18-26	Lord Lieutenant.
„ Land Office (England)	18-24	Commissioners.

NOMINATIONS FOLLOWED BY QUALIFYING
EXAMINATION—*continued.*

Name of Situation.	Limits of Age.	Authority with whom Nomination rests.
Clerks, Loan Fund Board (Ireland) .	18-25	Lord Lieutenant.
„ London University . . .	{18-24 25-35}	Senate.
„ Lunacy Board (Scotland) .	18-25	Commissioners.
„ Temporary Commissions . .	18-40	„
„ Sorting, and Telegraph Learners, provincial post-offices)	14-25	{Postmasters and Postmaster-General.
Inspectors of Mines, &c.	23-35	Home Secretary.
Postmasters (Provincial)	21-50	Postmaster-General.
School Inspectors' Assistants (England and Scotland)	22-35	Inspectors.
Skilled Telegraphists	14-24	Postmaster-General.
Most subordinate offices such as Stewards, Attendants, Office-keepers, Stampers, Messengers, &c. . . .)	..	Heads of Departments.

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EXAMINATION TEST.

The Civil Service Commissioners have power to appoint to any office without examination where it is considered to be in the public interest to do so. Amongst appointments which are made under this rule are Inspectors, Agricultural Department; Inspectors of Schools, England; Inspectors and Surveyors, Board of Trade; various technical appointments under War Office, Admiralty, and other departments, &c.

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